
The Long-term Development of Socio-spatial Differentiation in Socialist and Post-socialist Prague*

PETRA ŠPAČKOVÁ, LUCIE POSPÍŠILOVÁ,
and MARTIN OUŘEDNÍČEK**

Faculty of Science, Charles University, Prague

Abstract: The article examines how different social and urban processes were reflected in the spatial patterns of three dimensions of population structure (demographic, socio-economic, and ethnic statuses) in Prague during the socialist and post-socialist periods. The article has three main objectives. First, it analyses inertia and change in socio-spatial patterns and evaluates the processes that have influenced them. Second, it investigates how the importance of all three statuses in the spatial differentiation of urban space has evolved. Third, the article focuses on the level of geographical variability as recorded within different spatial scales, and the development of this variability. It examines selected indicators of socio-economic, demographic, and ethnic statuses by employing detailed statistical data on the level of basic settlement units from the Population Censuses held in 1970, 1991, and 2011. The results confirm that the most significant changes in socio-spatial patterns between socialism and post-socialism can be observed for ethnic spatial differentiation. In addition, the city witnessed considerable changes in demographic spatial patterns in both periods, while socio-economic spatial patterns have remained relatively stable. New socio-spatial processes driven predominantly by movements of young and better-off populations have taken place in previously less attractive neighbourhoods. As a result, very different populations often live side-by-side in contemporary Prague.

Keywords: socio-spatial differentiation, socialist and post-socialist city, population census, spatial variability, Prague

Sociologický časopis/Czech Sociological Review, 2016, Vol. 52, No. 6: 821–860

DOI: <http://dx.doi.org/10.13060/00380288.2016.52.6.288>

* This article was prepared using funding provided by the Czech Science Foundation under project no. GA14-00393S entitled 'Dynamics of Social Environment and Spatial Mobility in Metropolitan Regions of the Czech Republic'. The authors would like to thank Pavlína Netrdová for her comments on the manuscript and two anonymous reviewers for their insightful comments on an earlier version of this article.

** Direct all correspondence to: Petra Špačková, Department of Social Geography and Regional Development, Faculty of Science, Charles University, e-mail: petra.spackova@natur.cuni.cz.

The statistical analysis of visible and measurable structural aspects of the city is a useful sociological instrument, but it is also necessary to understand what is 'behind' this analysis and which processes actually create the socio-spatial structure of the city. A revival of this Park's tradition would enrich social ecology with an interpretative and dynamic aspect.

Jiří Musil [1991: 83]

Introduction

Since the Second World War, the socio-spatial structure of Prague has been influenced by two different societal and political regimes, which have left very different imprints on the city's fabric. The ideology of socialism was based on the production of an egalitarian society, which would be mirrored in urban spatial patterns. Thus, the declared aim of socialist urban policy-makers was to reduce social inequalities in society and contribute to the elimination of class-based segregation inherited from capitalism [Ruoppila 2004]. On the contrary, the emergence and gradual rise of social inequalities [Enyedi 1998; Stanilov 2007], which in the case of some cities also resulted in spatial inequalities [Tamaru et al. 2016], appeared to be natural, expected, and to some extent tolerated in the post-socialist period.

Indeed, the way the city of Prague developed under these two regimes differed substantially, particularly in residential areas, where socio-spatial inequalities are most apparent. The socialist-era state-dominated housing market was characterised by the large-scale construction of panel housing estates on the outskirts of the city and very low levels of investment in the existing inner-city housing stock [Enyedi 1998; Musil 2005]. Only this state-controlled decentralisation developed under socialism, in contrast to the suburbanisation evolving in Western countries at the same time [Ouředníček 2003; Hirt and Kovachev 2006]. Principles of egalitarianism also led to support for public housing at the expense of private housing in socialist Prague [Ruoppila 2004]. On the other hand, the post-socialist period brought new political, economic, and social conditions that enabled the development of 'new' processes such as suburbanisation and inner-city revitalisation, and shifted investment activity to other parts of the city (i.e. the inner city and suburban ring).¹ Thus, the development trajectories of many of Prague's neighbourhoods have changed in the past twenty-five years.

Set against this background, the present article considers the question of how these social and urban processes are reflected in the spatial patterns of Prague and in the variability of urban space in particular. By examining the development of three different dimensions of population structure (demographic, socio-economic, and ethnic statuses), we aim to contribute to discussions on the impact of the intentions of socialist planners and the later emergence of (new) ur-

¹ The new socio-spatial inequalities were discussed in a thematic issue of *Sociologický časopis/Czech Sociological Review* 4/2011 [Ouředníček and Temelová 2011].

ban social inequalities on socio-spatial structures of Prague. In general terms we also aim to extend ongoing discussions of the specificity of the post-socialist city and to consider the importance of the socialist (and partially also the inter-war) period in the development of the socio-spatial structure of contemporary Prague. Specifically, we emphasise a long-term evaluation of socio-spatial changes. Sharing the view of Jiří Musil [1987], we are convinced that Prague can be a very useful laboratory for assessing the impacts of different policy settings and the functioning of the housing market.

This article has three main objectives. First, we analyse inertia and change in socio-spatial patterns and evaluate the processes that have influenced them. We describe and explain how the spatial pattern of demographic, socio-economic, and ethnic status have changed during the socialist and post-socialist periods and concentrate also on inertia in pre-socialist spatial patterns. Second, using the Theil index we investigate how the importance of all three statuses in the spatial differentiation of urban space has evolved. Finally, we focus on the level of geographical variability in urban differentiation as recorded at different spatial scales and the development of this variation. To calculate the Theil index and its decomposition, we use a variety of spatial units, from the smallest basic settlement units to cadastres and housing types. Our aim is to ascertain whether the categories of higher-scale levels (cadastres and housing types) are useful for explaining the changing variability of different statuses in the socialist and post-socialist periods. We are particularly interested in whether it is possible to confirm the fine-grain differentiation found in the latest research on post-socialist cities for both socio-economic indicators [Marcinićzak et al. 2015; Ouředníček et al. 2016] and for demographic and ethnic statuses.

Our ambition in this paper is to build on two streams of scholarly literature. First, we want to extend the work of urban scholars dealing with the development of Prague's internal structure under socialism [Musil 1960, 1968, 1987, 1993; Votrubec 1965; Matějů et al. 1979; Matějů 1980; Musil and Ryšavý 1983]. During the 1970s, publication of a thematic issue (1/1977) of *Sociologický časopis* (Czech Sociological Review) marked a crucial turning point and it contained many widely cited articles in the field [Charvát and Večerník 1977; Linhart et al. 1977; Matějů 1977; Musil 1977]; it provided knowledge about the city's development during the initial era of socialism and during its transformation from a capitalist to a socialist city. Since then, no such complete study of Prague's socio-spatial structure on the basis of census data has been undertaken because of the emergence of other topics of study during the post-socialist period [Sýkora 1999; Ouředníček 2003; Ouředníček and Temelová 2009, 2012]. Second, we seek to contribute to the debate on socio-spatial differentiation in post-socialist cities, which has recently become more focused on socio-economic spatial structures [Marcinićzak et al. 2013, 2015; Ouředníček et al. 2016; Tammaru et al. 2016].

In our analysis we examine the socio-spatial differentiation of Prague and its development from 1970 to 2011. We scrutinise selected indicators of social-economic, demographic, and ethnic statuses by employing detailed statistical data

from Population Censuses conducted in 1970 (to assess the socialist era), 1991 (at the end of socialism), and 2011 (after twenty years of post-socialist development). We employ quantitative analysis; first, we use location quotients to assess inertia and changes in socio-spatial patterns. Second, we use the Theil index to evaluate the importance of each status in Prague's spatial differentiation and its decomposition to explain the variability within various spatial levels.

Socio-spatial differentiation in (post-)socialist cities and Prague

The different societal and urban processes witnessed since the establishment of the communist regime have brought significant changes to the socio-spatial patterns of cities in Central and Eastern Europe (CEE). The eras of both state socialism and post-socialist transformation have left very different imprints on the fabric of pre-socialist and socialist cities and thus also on socio-spatial differentiation. Many authors have described the processes influencing socio-spatial urban structures in socialist [e.g. Musil and Ryšavý 1983; Enyedi 1996; Szelényi 1996; Musil 2005] and post-socialist cities [e.g. Borén and Gentile 2007; Stanilov 2007; van Kempen and Murie 2009]. The present chapter offers a summary of socialist (in the first section) and post-socialist (in the second section) development, focusing specifically on the connection between socio-spatial processes, housing policy, and development, and the three aforementioned dimensions of population structures. Even though the patterns of urban changes that have taken place in different cities have much in common [Ruoppila 2004; Tammaru et al. 2016], post-socialist countries and cities do not all share exactly the same socio-spatial development and the local context is important [Smith 1996; Hamilton 2005; Tammaru et al. 2016]. Thus, we also discuss the specific context of socialist and post-socialist Prague.

Socialist cities

The main feature distinguishing socialist countries from their Western counterparts was a centrally planned economy focusing on industrial development and collective ownership. This focus was mirrored in socialist urban development and housing policy [Musil and Ryšavý 1983; Enyedi 1996; Tosics 2005]. Musil [2005: 39–40] summarised the following important policies that developed under state socialism and that had the greatest impact on the internal spatial structures of socialist cities: the land and property markets were abolished, all but eliminating the economic significance of location within cities; housing resources were redistributed through the reallocation of empty housing or by dividing housing units into several parts; local authorities were legally able to regulate housing; retail shops and services were nationalised; and finally, large housing estates were constructed, mostly on the outskirts of cities.

In Prague, three specific policies applied in three different periods set up the basic framework for the development of socio-spatial processes within the city: (i) A period of growth control from the 1950s until the mid-1960s when investments were made, especially outside Prague, in industrial areas and centres of administrative districts [Hampel and Kühnl 1993]. This policy slowed down population growth and, to a considerable degree, froze the physical and functional structure of Prague. (ii) The establishment of the Complex Housing Construction Programme, which located construction within the administrative boundaries of the former Greater Prague and involved the development of smaller-scale housing estates connected to existing technical and transport (tramway) infrastructure during the 1960s. (iii) Significant investment in the newly annexed² territories in the form of 'new towns' greenfield development served by new metro lines.

Socialist cities were planned to facilitate access to quality housing and social services for all inhabitants and thus to eliminate inequalities in living standards [Smith 1996] and class-based segregation [Ruoppila 2004]. However, the reality was described differently [Musil 1968; Enyedi 1996; Smith 1996; Ruoppila 2004]. Enyedi [1996] referred to growing stratification in urban society as well as to the formation of a new elite, which was mirrored in the urban space. Other scholars have commented on the impossibility of completely changing socio-economic spatial patterns inherited from an industrial and even mediaeval past [Ruoppila 2004; Musil 2005; Ouředníček et al. 2016]. Generally, under state socialism, existing socio-economic spatial inequalities decreased at the same time as new ones developed [see, e.g., Szelényi 1983; Enyedi 1996; Smith 1996; Musil 2005]. The social heterogeneity of new housing estates on the one hand and the persistence of high-status neighbourhoods, the development of new elite localities, and the concentration of low-income population in deteriorating parts of cities on the other were the most important features of socio-economic spatial differentiation under socialism [Enyedi 1996; Smith 1996; Ruoppila 2004; Musil 2005; Tosics 2005]. Nonetheless, scholars agree that the socio-economic spatial inequalities found in socialist cities were less severe than in comparable capitalist cities [Smith 1996; Duke and Grime 1997; Musil 2005].

In Prague, the effort to eradicate the class inequalities of a capitalist city led to the clearance of working-class slums and subsequent improvement of housing in selected inner-city areas during the 1950s and 1960s. The system of allocating housing to young families created socially heterogeneous areas in new housing estates. This heterogeneity was partly disrupted by the construction of cooperative housing and the preferences of selected professions (police, army, transportation) and their concentration within the newly built housing estates [Musil 1968]. A specific mode of apartment exchange also enabled relocation to preferred housing stock especially in the city centre, residential suburbs from the

² Three-fifths of today's administrative area was annexed during the 1960s and 1970s.

19th century (Vinohrady) and villa quarters, which were still the most desirable places to live within the socialist city [Matějů 1980].

While the impact of the construction of housing estates on socio-economic spatial inequalities in socialist cities is ambiguous, it is clear that such construction significantly influenced their demographic spatial structure [Matějů 1980; Musil 2005]. New housing estates accommodated between 20% and 80% of the total population of cities [Tsenkova 2006], housing mainly young families. In contrast, older inhabitants remained in inner city localities [Ruoppila 2004; Musil 2005].

In Prague, the allocation of new housing to young parents with children and the concentric sprawl of new development created a specific pattern of a gradient of increasing numbers of younger residents from the inner city towards the periphery. Because the general mobility of the population was low, this spatial arrangement survived for a long time following the completion of the housing estates. Moreover, the older population was trapped in the older inner city housing stock or working-class houses in the outer city and semi-rural settlements of the city's periphery. Western-style suburbanisation was an unknown process in Prague because of the many barriers [Ouředníček 2003] preventing this development.

Ethnic segregation was low in socialist cities, with the exception of Soviet cities [Smith 1996; Tammaru et al. 2016]. In some cities (Budapest, Prague), concentrations of Roma people were localised mostly in inner-city areas with poorer housing stock [Ladányi 1993; Ouředníček 2002]. In the case of Prague, the Roma population lived in tenement houses in several former industrial neighbourhoods (Nusle, Žižkov, Libeň, Karlín, Smíchov). Nonetheless, an ethnic homogeneity caused by the events of the Second World War and by a closed communist state was one of the significant features of Prague under socialism [Přidalová and Ouředníček 2017].

Post-socialist cities

Political, economic, and institutional conditions have changed significantly in CEE countries since the end of the communist regime. Generally, two approaches to the study of post-socialist development in CEE countries have appeared: transition and transformation [Stark 1992; Dobry 2000; Pavlínek 2003]. Transition approaches are related to neoliberal economic theories and see the transition to capitalism and a market economy as taking place in an uncomplicated and rapid manner, sometimes defined as 'shock therapy'. Transformation approaches, on the other hand, understand changes in post-socialist countries as developmental and dependent on past development (path dependency), and they emphasise processes rather than focusing on the final destination [Stark 1992; Dobry 2000; Pavlínek 2003]. As such it is argued that instead of general models of development and the establishment of a Western type of democracy, CEE countries have

undergone 'a plurality of transition' both across the area and within the countries themselves [Stark 1992: 301]. At the beginning of the post-socialist period there was a widespread belief in a transition to a market economy using neoliberal approaches [Sokol 2001; Sojka 2000; Saulsby and Clark 2007]; however, different countries adopted different strategies and some of them chose a more gradual approach [Bjørnskov and Potrafke 2011]. Critics of this development argue that the visions and promises of its proponents were not met, mainly because the differences among countries and their socialist and pre-socialist histories, and their different situations from Western countries, were not taken into account [Stark 1992; Dobry 2000; Sojka 2000]. Such critics often prefer institutional or radical approaches to neoliberal theories.

Critics of the Czech neoliberal transition approach point to its dominance in state practices until 1997 [Sojka 2000] and consider it unsuccessful for several reasons but mainly because of the 'emphasis placed on the speed of privatization processes at the expense of institutional transformation, the setting up of adequate legal frameworks and emphasizing the moral aspects of transformation' [Mlčoch, Machonin and Sojka 2000: 15] and for overlooking the geographical and historical aspects of transformation [Pavlínek 2003]. In contrast, other authors highlight the plight of the country after the collapse of the regime and see the Czech transition rather more positively [Žídek 2006; Mikula and Žídek 2013].

Particular policies of transformation³ and their impacts on urban areas have been described in a large body of literature [e.g. Kovács 1999; Tosics 2005; Borén and Gentile 2007; Stanilov 2007; Sýkora and Bouzarovski 2012]. Sýkora and Bouzarovski [2012] see post-socialist cities as undergoing transformation in similar directions (from communism to capitalism) but along different paths (differences in the impact of local contexts and methods of applying reforms). Tosics [2005] offered a typology of cities on the basis of the characteristics of transition and their development. Also inspired by path dependency he presented eight types of cities based on the speed and outcomes of transition and the specific steps within it (e.g. Czech, Slovak, and Polish cities experienced 'relatively quick transition from the socialist to a "mixed" model with some remnants of state control' [Tosics 2005: 72]). Even though local municipal governments have influenced the direction of urban development since the 1990s, national policies are considered to be the most influential [Stanilov 2007].

The national policies that accompanied the transition from a centrally planned economy towards a market economy and had direct impact on urban structures can be summarised as follows: state control over land and housing was abolished on both the demand and supply sides, and power and decision-making were decentralised at municipal levels; land and housing stock were pri-

³ In this text we use the term transformation in a general way to refer to the changes in post-socialist countries. When referring to the work of other authors, we respect their terminology.

vatized and restituted; the role of planning changed; and prices were liberalised [Kovács 1999; Tosics 2005; Stanilov 2007]. Private actors became an important driving force of urban development [Tosics 2005] and CEE cities were opened to 'new' global and international forces [Sýkora 1999; Hamilton 2005]. Scholars who describe the consequences of residential privatisation [Sládek 2011] and restitution [Lux and Mikeszová 2012] in Czechia have criticised the uneven distribution of benefits from the privatisation process for different types of tenants and owners. They argue that the differential approach of municipalities in privatisation strategies and differential protection of regulated and non-regulated apartments have created new inequalities both in the housing sector and in society at large. Moreover, Sládek [2011] argues that privatisation of housing led to strengthened socio-economic polarisation and social unevenness. However, the situation is not so clear-cut and Lux and Sunega, in the same book, suggest that social disparity in housing does not threaten the social cohesion of Czech society [Lux and Sunega 2011: 128]. From an economic perspective, restitution and small-scale privatisation were forces that supported the establishment of a real estate market and the transformation of retail and services [Sýkora 1996].

These mainly institutional transformations, along with other economic and social ones, have brought many changes to post-socialist urban spaces [Sýkora and Bouzarovski 2012] and they differ regionally. For instance, the regional consequences of transformation processes differ considerably in the context of Prague as a prime economic centre with specific conditions (see below). Generally, real estate investments were made in more attractive locations such as city centres and more prestigious inner-city and suburban areas, while other localities such as housing estates or industrial areas remained overlooked in the majority of cases [Stanilov 2007; Temelová 2009]. However, public subsidies for regeneration appeared in some countries [Wiessner 1999; Stanilov 2007], and new construction and both revitalisation and decay have been documented in inner-city areas and housing estates [Dekker and van Kempen 2004; Brade et al. 2009]. Studies from some countries (e.g. Czechia, Estonia) have even shown that housing estates, despite negative predictions, retained a mixed social status and a favourable image among urban residents [Kährlik and Tammaru 2010a; Temelová et al. 2011]. Nevertheless, the urban patterns and socio-spatial structure of post-socialist cities have been influenced most by suburbanisation processes [e.g. Ott 2001; Ruoppila and Kährlik 2003] that were enabled following land restitution and the introduction of mortgages and reinforced by the increasing value of properties in central parts of the cities [Stanilov 2007].

Capitalism has brought significant changes to the socio-spatial patterns of cities in CEE. Brade et al. [2009] point to a general agreement among authors that the development of the housing market, the privatisation of the housing stock, and the rising socio-economic inequalities in society are factors that have been influencing socio-economic spatial residential differentiation. Even though income polarisation in the post-socialist period has been apparent in most cities, albeit

in varying intensity [Heyns 2005; Tsenkova 2006], its translation into the urban space seems to have been delayed [Tammaru et al. 2016]. Tammaru et al. [2016] described the relationship between the increasing socio-economic inequalities in society and growing socio-economic segregation as ambiguous and presented other factors that need to be taken into account in the evaluation of segregation, such as levels of globalisation, welfare-state regimes, and housing regimes. These factors operate together and create unique conditions, which are then mirrored in levels of segregation.

Selective localisation of new and renovated housing has been a significant factor in changing socio-economic spatial differentiation in post-socialist cities, because new houses have been available mainly (although not exclusively) to people of middle or higher socio-economic status [Ruoppila 2004; Marcińczak 2007; Stanilov 2007; Brade et al. 2009]. Wealthier people have thus been concentrated in the central parts of cities and in suburban localities, and growing social disparities on the micro level have been documented in several cities as the result of the different social statuses of the original and the new populations⁴ [Marcińczak 2007; Ouředníček et al. 2016]. Alongside differentiation on the micro level within neighbourhoods, scholars refer also to differences between neighbourhoods: high-status villa quarters [e.g. Ruoppila and Kährik 2003; Marcińczak 2012; Ouředníček et al. 2016], differentiated development of housing estates [Dekker and van Kempen 2004], or inner-city localities [e.g. Ruoppila and Kährik 2003]. Tammaru et al. [2016] conclude, on the basis of a comparative study of segregation, that socio-economic spatial segregation has increased even in post-socialist countries.

However, the relationship between growing economic stratification, new housing construction, and patterns of segregation in Prague is not straightforward. Even the least popular housing in Prague is relatively expensive for a poor population, which prevents the creation of deprived neighbourhoods within Prague itself. Poorer households or young couples searching for their first home often use older rural houses and transformed cottages outside Prague [Ouředníček 2007]. Even now Prague has no district or neighbourhood that could be labelled as deprived [Kostelecký et al. 2012]. There are dormitories scattered throughout the city that are typically used for foreign guest workers. On the other hand, formerly neglected localities in the centre, working-class neighbourhoods, and suburban villages were selected as construction sites for new housing during the transformation era. Another important factor was the role of rather 'social and mild' housing policy, which favoured privatising housing stock to sitting tenants, regulating rents in a segment of the private housing stock until 2012, and creating conditions that enabled mortgages to be available to a wide range of people. These conditions influenced the creation of specific socio-economic

⁴ This kind of differentiation was, however, also described in socialist cities [e.g. Weclawowicz 1979].

patterns in Prague, which rather differed from other post-socialist cities but also from other regions within the Czech Republic [cf. Sládek 2011].

The demographic differentiation of post-socialist cities results from both urban processes and general demographic changes. The impact of a second demographic transition involving significant changes in household structures and the increased importance of migration is now apparent in post-socialist countries⁵ [Philipov and Dorbritz 2003; Tsenkova 2006; Steinführer and Haase 2007; Haase et al. 2011]. The new demographic and social composition of the urban population (a higher proportion of single and retired people, students, cohabitantes, apartment-sharers, foreigners, and tourists) has led to demands for new types of housing. New housing construction on the outskirts and beyond the current boundaries of cities accompanied by a migration of young people, similar to the development of housing estates under socialism, has given rise to a new demographic differentiation. The creation of these new localities together with new or reconstructed houses within the city is in contrast to the gradually ageing housing estates and the character of some parts of inner cities [Dekker and van Kempen 2004; Marcińczak 2007; Steinführer and Haase 2007].

With the opening of the borders after the collapse of the communist regime, processes of international migration have begun to influence urban development. However, a significant increase in the number of foreign nationals in post-socialist cities has been unusual (documented, for example, in Prague [Drbohlav and Džurová 2007; Drbohlav 2011]). The ethnic segregation of immigrants has thus remained low compared to Western countries [Tammaru et al. 2016; Musterd 2005]. Only post-Soviet countries with their large Russian-speaking populations represent a specific case where ethnic residential segregation has its roots in socialism [Kulu 2003; Tammaru et al. 2016]. In addition, the intensification of socio-economic differences in society has led to the segregation of the Roma people, which has been documented in some post-socialist cities [Kovács 1998; Ladányi 2002] and has also been apparent in Prague [Ouředníček 2002].

Methods and data

We employ quantitative analysis using location quotients⁶ to assess both inertia and change in socio-spatial patterns, the Theil index to evaluate the importance of each population dimension in Prague's spatial differentiation, and the decomposition of the Theil index to explain the variability within different spatial levels. The computations of the Theil index were carried out with the help of EasyStat software [Novotný et al. 2014]. The Theil index has been employed in regional

⁵ In Czechia, it was even described as a demographic shock [Rychtaříková 2000].

⁶ The location quotient compares the level of concentration of a phenomenon in selected spatial units with the average representation of the phenomenon in the entire population.

analyses where separation into intra- and inter-regional components is important in order to enable a comparison to be made of the distinct parts of the total variability [Reardon and Firebaugh 2002; Netrdová and Nosek 2009; Blažek and Netrdová 2012].

The empirical analysis is divided into three sections that follow the classical division of the population into socio-economic, demographic, and ethnic statuses. This classical division was an outcome of social area and factorial ecology analyses in Western cities [Shevky and Bell 1955; Murdie 1969; for a review, see White 1984] and Prague [Musil 1960, 1968; Matějů 1977, 1980; Linhart et al. 1977]. We wanted to follow up on the work of these authors using a similar structure of analysis. However, in our research we perceive these three dimensions mostly as analytical categories rather than as explanatory factors of socio-spatial differentiation.

We use Population Censuses from 1970, 1991, and 2011 because they are the only sources of data offering such breadth of information about the population structure from a long-term perspective and on a sufficiently spatially detailed scale. In the periods we chose to study we sought to select key moments in the city's development. The Census data from 1970 describe the city in the mid-socialist period when its spatial structure was changed by the completion of small housing estates within built-up areas or in their immediate vicinity. These data have only rarely been used in recent studies. Data from 1991 reveal the major changes connected with the large housing estates built on the periphery of the city. Finally, data from 2011 reflect twenty years of post-socialist transformation.

However, the Census data have some limitations that need to be addressed. First, the data from 1970 are incomplete, with information missing for 14 basic settlement units (BSUs), which equates to 20 668 persons (less than 2% of Prague's population in 1970). These BSUs are located in the city's north-eastern part in Strážkov, Vysočany, and Libeň (see Figure 2). Second, the data quality varies across the Censuses from different years. The non-response rate was relatively high in the Census of 2011 due to the method of data collection [Krausová 2013]; this is particularly the case for the foreign population. In localities with a high concentration of foreign nationals (i.e. the historical centre and inner-city neighbourhoods), detailed data about the population's socio-demographic structure is often incomplete.⁷ Finally, the 2011 Census monitored people according to their usual residence whereas data from 1970 and 1991 were published according to their permanent residence.

To cover the broad scope of demographic, socio-economic, and ethnic statuses we chose a variety of indicators that were defined similarly in all respective

⁷ The higher non-response rate (e.g. for attained education, economic activity) was influenced by the fact that part of this information was obtained indirectly from government evidence regarding the presence of foreigners and not from the Census questionnaires [Krausová 2013].

Table 1. Characteristics of the spatial units used in the analyses

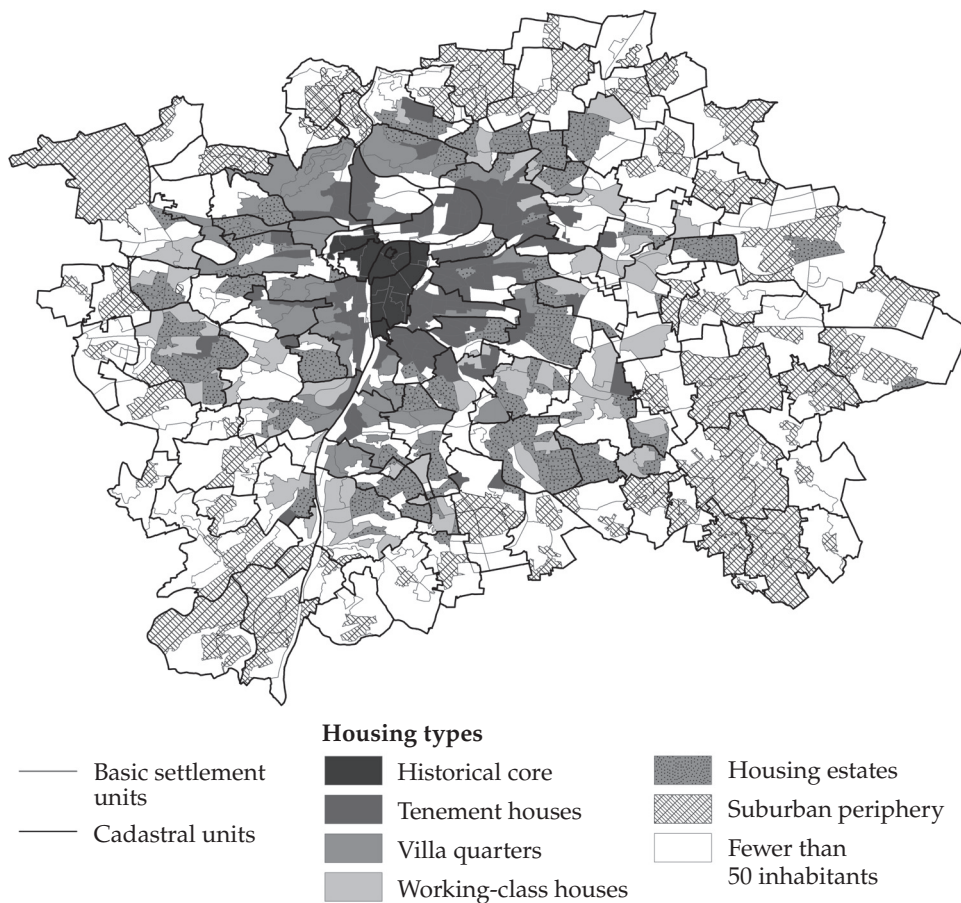
Spatial units	1970		1991		2011	
	Number of spatial units	Mean population size	Number of spatial units	Mean population size	Number of spatial units	Mean population size
Basic settlement units	624	2 581*	860	2 560*	916	2 250*
Cadastral territories	110	10 370	112	10 840	112	11 328
Housing types	Number of BSUs	Total population	Number of BSUs	Total population	Number of BSUs	Total population
Housing types						
Historical core	19	99 724	24	63 629	23	46 939
Tenement houses	128	547 790	110	359 408	141	341 392
Villa quarters	51	104 717	49	88 620	49	89 691
Working-class houses	39	48 577	72	77 241	80	99 321
Housing estates	39	187 099	123	524 811	155	540 091
Suburban periphery	7 / 132**	70 576 / 131 704**	94	94 378	114	148 440
Less than 50 inhabitants	202	371	388	6 087	354	2 922
Data not available	14	20 668	–	–	–	–
Prague	569 / 624**	1 079 522 / 1 140 650**	860	1 214 174	916	1 268 796

Source: Population Censuses of 1970, 1991, and 2011.

Note: *BSUs with more than 50 inhabitants only.

**The administrative area of Prague in 1970/2011.

Figure 1. Spatial units and housing types in Prague in 2011



Population Censuses (see Table 2). Indicators were chosen in order (i) to most appropriately describe the three dimensions of population structure (demographic, socioeconomic, and ethnic) and (ii) to capture major shifts in population structures throughout the period studied (in cases where the data are available).

We scrutinised four indicators in order to evaluate the changing demographic structure of the local populations. The proportion of children (aged 0–14 years) and young people (aged 20–39) should reflect changes connected with the construction of new housing or the revitalisation of existing housing stock. On the other hand, senior citizens account for a relatively stable population group

Table 2. The demographic, socio-economic, and ethnic structure of the population in Prague housing types, 1970–2011—part one

Status/Indicator	Historical core	Tenement houses	Villa quarters	Working-class houses	Housing estates	Suburban periphery	Prague
Share of children (0–14 years)	1970	12.5	14.9	16.1	23.1	17.1	15.7
	1991	15.8	18.4	18.0	21.2	19.7	18.5
	2011	8.3	11.2	13.0	13.2	11.6	16.1
Share of young people (20–39 years)	1970	16.3	18.5	18.2	26.3	18.9	18.5
	1991	19.0	20.3	18.8	22.3	19.8	20.4
	2011	27.5	31.6	24.9	27.9	26.8	28.1
Share of seniors (65+ years)	1970	16.2	16.0	16.2	6.4	14.5	14.6
	1991	21.5	22.2	15.5	9.8	13.3	15.4
	2011	14.9	15.0	19.3	15.9	16.7	12.8
Share of one-person households	1970	23.9	22.3	20.1	21.1	19.3	20.0
	1991	30.3	34.4	27.6	25.0	23.0	27.4
	2011	42.8	42.1	32.7	31.8	34.9	25.4
Share of married persons	1970	56.9	59.6	63.0	63.7	69.7	62.4
	1991	43.8	44.1	47.9	50.7	49.6	51.8
	2011	30.4	34.0	42.4	42.5	40.2	44.2
Share of employed in secondary sector	1970	29.9	35.7	33.1	44.9	35.7	48.7
	1991	22.6	29.1	28.0	36.6	32.8	40.5
	2011	13.3	16.5	17.3	20.2	18.1	21.7
Share of employed in tertiary sector	1970	69.1	63.3	65.5	52.7	63.5	58.8
	1991	75.8	69.2	70.2	61.1	65.6	66.3
	2011	86.2	83.1	82.3	79.3	81.5	77.5

Table 2. The demographic, socio-economic, and ethnic structure of the population in Prague housing types, 1970–2011—part two

Status/Indicator	1970	1991	2011	Historical core	Tenement houses	Villa quarters	Working-class houses	Housing estates	Suburban periphery	Prague
Share of unemployed	–	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–
	71	7.8	5.5	–	–	–	6.0	6.7	6.0	6.8
Share of employed	55.5	53.3	52.2	55.5	53.3	52.2	51.2	56.2	52.2	53.3
	41.8	41.6	44.3	41.8	41.6	44.3	45.3	48.3	46.1	45.3
	45.8	47.1	42.2	45.8	47.1	42.2	44.9	45.8	45.3	45.8
Share of employed women	50.2	47.7	46.7	50.2	47.7	46.7	45.4	52.0	45.9	47.7
	35.2	34.6	38.5	35.2	34.6	38.5	38.7	43.1	39.6	39.1
	40.2	41.3	36.5	40.2	41.3	36.5	39.0	40.6	39.1	40.2
Share of primary educated	36.6	39.4	35.1	36.6	39.4	35.1	44.8	34.1	48.6	40.8
	21.4	24.3	18.1	21.4	24.3	18.1	24.3	20.8	27.0	22.4
	9.7	11.5	9.0	9.7	11.5	9.0	11.9	11.8	12.8	11.6
Share of university educated	10.7	8.4	12.8	10.7	8.4	12.8	6.1	12.3	3.5	8.1
	20.0	15.4	24.6	20.0	15.4	24.6	13.9	16.5	10.2	16.3
	32.3	28.3	35.6	32.3	28.3	35.6	25.7	23.7	25.3	26.4
Share of persons of non-Czech ethnicity	2.4	2.0	1.9	2.4	2.0	1.9	2.1	2.7	2.3	2.2
	3.8	3.8	2.6	3.8	3.8	2.6	3.0	4.1	3.2	3.8
	14.2	12.7	9.4	14.2	12.7	9.4	10.9	10.0	9.4	10.8
Share of persons of non-Czech citizenship	–	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–
	26.0	17.0	12.3	26.0	17.0	12.3	13.9	10.7	12.6	13.6

Source: Population Censuses of 1970, 1991, 2011.
 Note: The highest values are in bold, the lowest in italics.

Table 3. Theil index—demographic, socio-economic, and ethnic indicators

Indicator	Theil index			Share of variability explained on the level of...						
	1970	1991	2011	...housing types			...cadastres			
Demographic	Share of children (0–14 years)	0.037	0.052	0.035	76%	21%	27%	61%	73%	48%
	Share of young people (20–39 years)	0.026	0.036	0.015	66%	10%	21%	55%	65%	36%
	Share of seniors (65+ years)	0.061	0.136	0.090	65%	47%	6%	42%	69%	53%
	Share of one-person households	0.058	0.044	0.022	29%	42%	46%	38%	56%	65%
	Share of married persons	0.003	0.004	0.014	62%	49%	50%	55%	49%	53%
Socio-economic	Share of employed in secondary sector	0.023	0.029	0.025	36%	26%	24%	80%	75%	50%
	Share of employed in tertiary sector	0.013	0.008	0.002	47%	29%	20%	83%	78%	41%
	Share of unemployed	–	–	0.049	–	–	11%	–	–	29%
	Share of employed	0.001	0.005	0.008	29%	44%	5%	35%	59%	35%
	Share of employed women	0.002	0.010	0.010	34%	46%	5%	37%	58%	39%
Ethnic	Share of primary educated	0.015	0.019	0.030	37%	29%	10%	57%	46%	35%
	Share of university educated	0.122	0.052	0.036	41%	33%	20%	64%	56%	45%
	Share of persons of non-Czech ethnicity	0.080	0.066	0.112	9%	13%	8%	44%	39%	30%
Share of persons of non-Czech citizenship	–	–	0.178	–	–	18%	–	–	38%	

Source: Population Censuses of 1970, 1991, and 2011.

Note: The highest values of the Theil index are in bold.

and their overrepresentation may indicate stagnation in a residential location. The socio-economic dimension is described by five indicators. The changing share of persons employed in secondary and tertiary sectors of the economy reflects a profound shift in the local economy. Even though Prague's economy was not yet dominated by the secondary sector in 1970, the share of the population employed in this sector was twice as high in 1970 as it was 41 years later. In 2011, the tertiary sector dominated the economy and provided jobs to 80% of employed persons. Another valuable source of information about the economic status of Prague's population is gained through a consideration of the proportion of unemployed persons. However, suitable data are available only for the 2011 Census because unemployment was non-existent in 1970 (to be unemployed was illegal under socialism), and it was still very rare in 1991. Social status is captured by examining the proportion of primary- and university-educated persons. The level of education has considerably improved over the last 40 years due to the ever-increasing availability of secondary and tertiary education.

Finally, over the past two decades, Prague's population has gained a new quality that was present only in a limited fashion under socialism, namely foreign nationals. In the analysis, we distinguish between two partially interrelated groups: persons of non-Czech citizenship (data available only for 2011) and persons of non-Czech ethnicity (data available for all three Censuses). Persons with non-Czech citizenship are included in the data only if they were living in the Czech Republic for at least 12 months prior to the Census. Because the Census of 2011 did not rely only on people completing the Census form, but also used the population register of the Czech Ministry of the Interior, it can be considered the most reliable official data source on the number of foreign nationals regularly resident in the Czech Republic (however, detailed information about socio-economic structure is mostly missing for those foreign nationals added to the data solely on the basis of their inclusion in the Ministry of the Interior's population register).⁸

Slightly differently, the inclusion in the data of persons with non-Czech ethnicity is based on voluntary self-reporting in the Census form. Although these inhabitants may have Czech citizenship (approximately 1%), their reported share in the population is lower than in the case of those with non-Czech citizenship for the reasons described above (lower response rate, self-reporting). Therefore, the informative value of this data is slightly weaker, but the data are included in the analysis because of the possibility of monitoring ethnic structure over the long term since 1970.

⁸ The statistics do not include foreign nationals living in Prague for a period of less than 12 months, EU citizens residing in the Czech Republic for more than 30 days without having notified the Czech authorities of their stay, and, of course, illegal migrants. For an estimation of the number and localisation of illegal migrants in Prague, see Medová and Drbohlav [2013].

Even though a wide range of indicators is used throughout the analysis, due to spatial constraints the text in the next section focuses mostly on indicators that play the biggest roles in the differentiation of Prague urban space. However, Tables 2 and 3 include data and research results on the full list of indicators under scrutiny.

Our analysis refers to several spatial levels: basic settlement units (BSUs), cadastral territories, and different housing types (see Figure 1). BSUs and cadastral territories are official spatial units. BSUs were first delimited for the Census in 1970 as homogeneous localities according to the functional use of built-up areas.⁹ The level of BSUs was employed as the principal analytical tool to assess the changing variability of spatial patterns. Only units with at least 50 inhabitants were included in the analyses (in total, nearly 100% of the Prague population in 1991 and 2011 and 98% of the population in 1970). The mean population size of these units ranged between 2250 in 2011 and 2581 in 1970 and they covered approximately 50–60% of Prague's territory (see Table 1). Cadastral territories are technical units representing areas of neighbourhoods (or formerly independent municipalities). Their mean population size ranged between approximately 10 000 and 11 000 inhabitants and they cover the entire territory of Prague.

The analyses on higher scale-levels (cadastral territories and different housing types) were carried out to respond to the third objective. The main purpose of using a housing typology is to classify BSUs into relatively homogeneous groups with a characteristic type of housing and consequently to enable and facilitate a generalised interpretation of the analysed data. The typology presented in this paper consists of six basic types of residential areas (historical centre, tenement houses, villa quarters, working-class houses, housing estates, and suburban periphery),¹⁰ as inspired by Linhart et al. [1977]. We adjusted the typologies of 1970 and 1991 to the spatial structure of Prague at that time; the typology for the 2011 Census was published elsewhere [Ouředníček et al. 2014]. Therefore, three different typologies were used (see Table 1 and Figure 1). Because there was a major extension of the administrative territory of Prague in 1974, we decided to go beyond Prague's administrative boundaries in 1970 and to include formerly independent municipalities in the analyses to make the research results comparable for all the time periods; see the basic information on housing types in Table 1.

⁹ The delimitation of BSUs has been revised in every successive census since then to reflect the inter-census changes in the urban tissue.

¹⁰ In the analysis, we sometimes refer also to the inner city, which consists mainly of tenement houses, villa quarters, some working-class houses, and a few housing estates and is delimited as an area where most houses were built before 1945. For more information, see Ouředníček et al. [2012].

Changing spatial variability in the demographic, socio-economic, and ethnic structures of the population

The analysis is divided into three sections that deal one by one with each of the three statuses describing Prague's socio-spatial structure—demographic, socio-economic, and ethnic. Each of these sections is organised to address this article's research objectives one at a time.

Demographic status

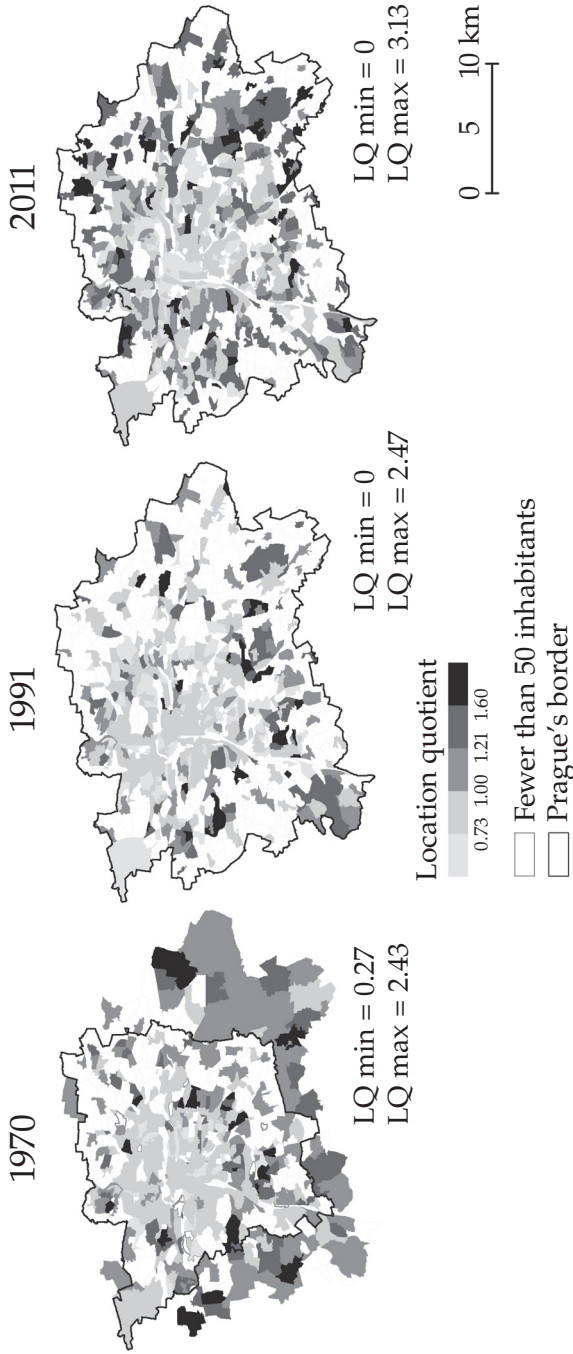
A rapid transformation was detected in the stability and inertia of the spatial patterns that have characterised the demographic structure of the population over the past 41 years. Most importantly, we can observe significant changes between the socialist and post-socialist periods; however, considerable differences were also found by comparing the mid- and late socialist eras. As Jiří Musil described in analyses of the 1930 and 1950 Population Censuses [Musil 1968], the age structure of the population in different localities is strongly connected to the particular time at which the housing stock in an area was completed and, in particular, with the effect of new housing construction. The same results were confirmed by Boháč [1923], Král [1947], and Moscheles [1937] during the inter-war period.

During the socialist period, a very restricted age cohort of young people with children moved to newly built flats in housing estates. As a result, this sub-population was significantly overrepresented (the share of young people with children amounted to up to 45–50% of the population of housing estates and even significantly higher in selected estates) and this explains the very low proportion of one-person households in these areas in the period after the completion of the housing units (see Table 2; cf. Musil et al. [1985: 62–63]). In 1970, this is evident for the smaller-scale housing estates built in the 1950s and 1960s (e.g. Novodvorská, Petřiny, and Červený vrch), whereas the large-scale construction of sizeable estates during the 1970s and 1980s led to changes in the age structure of areas on the periphery of the city (Jižní Město, Jihozápadní Město, and Černý Most, see Figure 2). According to Matějů's analysis, the most important factor creating socio-spatial differentiation in the socialist period was the combination of new generations of apartments and populations, and this explained 31% of the variance in 1970 [Matějů 1980].

On the other hand, older residents remained in high numbers in the historical core and inner-city neighbourhoods [cf. Ruoppila 2004].¹¹ This is especially evident in the late socialist period when the proportion of seniors reached 22%

¹¹ Even though a sort of socialist gentrification characterised by the arrival of young and higher social status residents was observed within selected central and inner-city neighbourhoods [Ouředníček 2002].

Figure 2. Spatial patterns of the demographic indicator: the location quotient for children (0–14 years), 1970–2011



Source: Population Censuses of 1970, 1991, 2011.

of the population in the historical core and inner-city tenement houses in the city centre (compared to 15% on average in the city). The mechanism of the elderly staying in this area and the younger generation moving out of it was described as early as the 1960s by Musil: 'Housing policy allocates new dwellings by preference to young families with children ... middle-aged and old people remained therefore in the old housing stock. The older the house, the smaller and older the households who live in them.' [Musil 1968: 258] This created a considerable dichotomy between the pre-socialist and socialist housing stocks from the 1950s and 1960s in the mid-socialist period [Matějů et al. 1979] and also significant differences between pre-war, early, and late-socialist housing estates in 1991 (see Figure 2).

Post-socialist development was characterised by a process of suburbanisation and the revitalisation of central and inner city areas, which led to the immigration of young age groups into the affected parts of the city. This gave rise to a new dichotomy between the suburban periphery on the one hand and the villa quarters and some housing estates (predominantly those built before the 1960s) on the other. Villa quarters, early housing estates, and also selected inter-war inner city neighbourhoods (e.g. Dejvice, Břevnov) experienced an ageing process that resulted in a larger share of elderly residents (villa quarters represented the housing type with the oldest residents in 2011 with almost 20% of their population being seniors).

In contrast, the areas on the outskirts of Prague with new suburban development are now the localities with the highest proportion of children (16% of the population in these areas are children compared to 12% in the wider city population [Ouředníček 2003]; for similar developments in the case of Tallinn, see also Kährik and Tammaru [2010b]).

In addition, like other cities in CEE, in Prague most inner-city and city-centre neighbourhoods underwent a remarkable transformation from 'neglected and old' under socialism to being attractive to a young economically active population in the post-socialist period (people aged 25–39 years now amount to 31% of the population in the inner cities; e.g. Holešovice, Smíchov, Karlín). The rejuvenation of the inner city was confirmed recently in many CEE cities including Prague [Kährik et al. 2015]. As a result, the proportion of seniors decreased considerably (some died of old age and others were slowly displaced in response to slow-paced rent deregulation). Characteristically, the share of children remains low because families with children prefer to live in more distant neighbourhoods (cf. re-urbanisation tendencies driven by younger families in many other cities [Haase et al. 2010]). Interestingly, one-person households continued (post socialism) to be overrepresented forming 42% of all households in the historical core and inner city in 2011. These one-person households feature predominantly elderly residents but also young childless people.

The analysis based on the Theil index shows the indicators of age-differentiated urban space in the city mainly during the late socialist period—their Theil

Figure 3. Spatial patterns of the socio-economic indicators: location quotient for university educated (above) and employed in the secondary sector (below), 1970–2011—part one

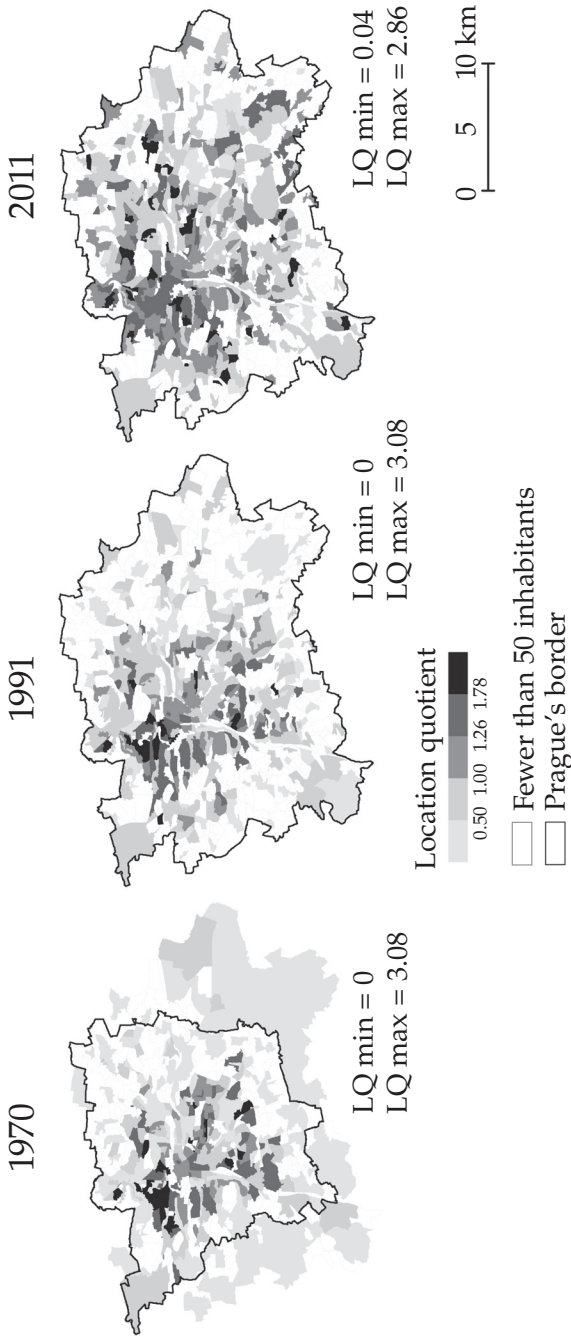
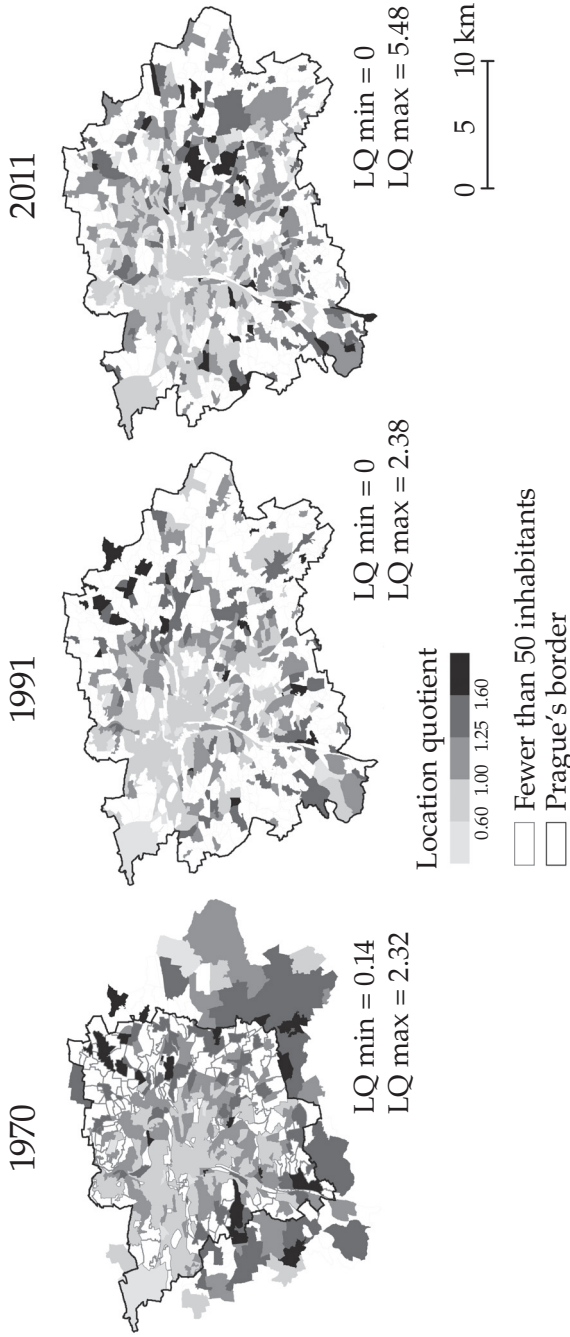


Figure 3. Spatial patterns of the socio-economic indicators: location quotient of university educated (above) and employed in the secondary sector (below), 1970–2011—part two



Source: Population Censuses of 1970, 1991, 2011.

index value is the highest in 1991 (approximately 1.5–2.5 times higher than in the other years; see Table 3). Interestingly, the most variability in urban space was associated with seniors (the Theil index values for seniors are the highest in all years with a peak of 0.136 in 1991).

The rising importance of all age structure indicators at the end of socialism is connected with the large-scale construction of sizeable housing estates in the 1970s and 1980s and the subsequent movements of population groups of a relatively restricted age to new large neighbourhoods. This increased differences between units and strengthened the dichotomy between city centre and inner city on the one hand and newly built estates on the other (as described above). Nevertheless, considerable differences existed within housing estates also because residents arrived in different decades and their age structure thus varied considerably.

During the post-socialist period, diminishing variability resulted from changes in housing policy, which now did less to support young families. Moreover, processes operating within the urban space—suburbanisation and inner city revitalisation—are connected with the migration of younger age groups to parts of the city that previously housed older populations [Ouředníček 2003]. This has gradually led to a greater mix of age groups in local populations as these ‘new’ and ‘autochthone’ populations often live side by side (and quite often within one BSU), and in turn to decreases in the differences between spatial units (in the case of all age groups studied—for example, the Theil index value for the share of seniors decreased to 0.09 in 2011).

The decomposition of the Theil index allows us to examine how much variability is explained at the higher-scale levels (see Table 3). Generally, the variability in all age indicators explained at the level of cadastral units rose from the mid- to the late socialist period and then dropped during the post-socialist period. Between 1970 and 1991, cadastral units developed in a similar manner and thus substantial differences continued to be pronounced at this level (around 70% of the variability was explained at this level). Later, the selective nature of spatial processes (revitalisation, new housing construction, and immigration) increased the inner heterogeneity of cadastral units and less clear-cut spatial patterns in the age structure of the population appeared (only 36% of the variability was explained at the cadastral level for the share of young people and around 50% for both children and seniors).

In the case of all age structure indicators, the share of the variability explained by the level of housing type was high and units within housing types were relatively homogeneous in 1970 (around 70% of variability is explained at this level; see Table 3). This is in accordance with the very large differences between the pre-war (historical core, tenement houses, and villa quarters) and post-war (housing estates) areas at that time. As the differentiation of BSUs has risen first in the group of housing estates and then within almost all the housing types (especially tenement houses, housing estates, and suburban periphery), the variability explained at this level has dropped considerably since 1970; for example,

housing types explained only slightly above 20% of the variability in the share of children and young people and as little as 6% in the case of seniors in 2011.

In the case of one-person households, the overall variability of BSUs was the highest in 1970, but has decreased since then. The more even distribution of one-person households in the urban space is influenced by the increase of their share (from 20% of all households in Prague in 1970 to 36% in 2011) and the number of them found not only among seniors but also among younger generations. In addition, in this respect the homogeneity of larger spatial units (cadastrals and housing types) has risen since the mid-socialist period. Almost half the total variability is today explained at the level of housing type. Interestingly, this is the only indicator where such a trend is observed and several rather homogeneous housing types have emerged: historical centre, tenement houses (both featuring a high share of one-person households) and villa quarters (with a low share of one-person households).

Socio-economic status

Compared to age structure, the spatial patterns of socio-economic indicators (describing the level of education, economic structure, and unemployment) are less variable throughout the studied periods. This applies especially to the housing stock from the pre-war period. First, we can observe a considerable inertia of high social status in several parts of Prague; even when we compare the pre-war description of the social index (capturing the presence of domestic servants in households) used by Moscheles [1937] or Král's [1947] classification (based on his own detailed knowledge). Similar trends have been observed in other (post-) socialist cities [Ruoppila 2004]. Substantial parts of the historical core and villa quarters of Prague (e.g. Smíchov, Spořilov, Hodkovičky), and especially the north-western part of the city (Dejvice, Bubeneč, Břevnov), have been permanently inhabited by people with high educational attainment (in other words, these areas are characterised by an overrepresentation of people with a university degree—for example, 36% of residents in villa quarters and 32% of residents in the historical centre compared to an average of 26% of residents in the city as a whole in 2011) and working in the progressive economic sectors (e.g. 86% of the population in the historical centre work in tertiary employment in comparison with an average of 82% of the population in the city as a whole; see Table 2 and Figure 3). In reality, these proportions could be even larger because foreign nationals with higher socio-economic status represent a significant share of the population in the historical centre and information on their SE status is missing in the Census data. In 2011, many of these neighbourhoods also belong to the group of localities with very low unemployment rates.

Second, at the other end of the spectrum, there are peripheral areas that contain many neighbourhoods that still retain a large share of people with only

primary levels of education (e.g. 27% of people in the suburban periphery had only primary education compared with the city's average of 22% in 1991). Until the late-socialist period (i.e. 1991) there was also a very small proportion of university-educated people in these suburban areas (only 10% compared to an average in Prague as a whole of 16%; see Table 2). In addition, economically active people in the suburban periphery have also more often found jobs in secondary sectors in all the years under scrutiny (even up to between 40% and 48% in 1970 and 1991; the city's average was about 10% lower). Interestingly, the recent suburbanisation process has been unable to change this in many localities because the well-off newcomers have not outnumbered the existing inhabitants. In addition to peripheral neighbourhoods, the eastern and north-eastern parts of Prague have also housed concentrated industrial activities and populations with low economic statuses since the 19th century (see Figure 3).

Nonetheless, even in the case of socio-economic status, we observe some profound changes in the urban tissue, which trace the influence of the construction of new housing and changes in the age structure of local populations. During the socialist period, the most apparent changes took place in (new) housing estates. Shortly after their completion, they exhibited sharp increases in the level of education of their inhabitants (e.g. compare the 12% share of university-educated people in housing estates with the 8% as the city's average). Some housing estates became the areas with the highest levels of attained education in Prague (e.g. Petřiny and Pankrác in 1970 and Háje and Barrandov in 1991; see Figure 3). However, with the in-situ ageing of the population on one hand and with further expansion of the accessibility of university education in society and the rise in the number of university students in the post-socialist period on the other hand, a slow gradual downward trend and the weakening of the relative position of housing estates within the city have been recorded over the past twenty years [Temelová et al. 2011]. However, similar to other post-socialist cities, we cannot identify a rapid social decline of housing estates' populations [Káhrlik and Tammaru 2010a].

Given that housing construction was relocated to other parts of the city after the collapse of the communist regime, social status increased in connection with the growing share of university-educated people in some localities in the city's suburban periphery (Nebušice, Pitkovice) or parts of the previously neglected inner and outer city (selected parts of Holešovice, Hloubětín, Libeň, Hlubočepy). However, this trend is spatially highly selective, gradual, and generally affects only small parts of neighbourhoods [Ouředníček 1997; Sýkora 1999; Temelová and Novák 2011], which explains, for example, the rather slow increase in the share of university educated people and those employed in tertiary jobs in the suburban periphery (25% and 78%, respectively, both of which are slightly below the city's average).

When evaluating the variability between spatial units, we recorded very diverse values of the Theil index for each indicator describing the economic or social

status of the population over the past forty years. First, we considered the variability of the urban environment as characterised by the sectoral economic structure of the population. The distribution of persons employed in the secondary sector was more differentiated compared to the tertiary sector and the importance of this measure in differentiating Prague changed insignificantly between 1970 and 2011 (the value of the Theil index ranged from 0.023 to 0.029; see Table 3). In contrast, the variability in those employed in the tertiary sector was less significant in 1970 (index value 0.013) and has even decreased further. This is connected with the considerable rise of this sector of the economy (around 80% of economically active persons in Prague had tertiary jobs in 2011; see Table 2). Although we are unable to trace the changing differentiation of BSUs according to the unemployment rate,¹² we observe relatively high variability between spatial units as measured by the Theil index in 2011 (index value 0.049; see Table 3), which indicates that the unemployed population tends to be somewhat concentrated.

Second, we considered the role of educational status in the differentiation of the urban environment. Interestingly, the share of university educated people was the most important differentiating factor in the mid-socialist period (the value of the Theil index was 0.122 in 1970) and since then the variability has dropped (to 0.036 in 2011). On the other hand, the variability of only primary educated persons was less important for the differentiation of urban space in 1970 and 1991; however, its importance rose in the post-socialist period (the value of the Theil index was 0.030 in 2011).

This development in the importance of educational status indicators in differentiating the urban space is directly influenced by the share of these subgroups in the total population. The share of university-educated people was relatively small in the Prague population as a whole in 1970 (only 8%; see Table 2) and was highly differentiated across the territorial units. After this time, its (formerly high) importance in differentiating urban space decreased chiefly because of its considerable rise amongst the population as a whole (a quarter of Prague inhabitants aged 15 years and over held a university degree in 2011). On the contrary, the share of primary-educated people has brought variability to the urban space more recently. In general, their share in the total Prague population decreased (to 9% in 2011), but this decrease took place at very different rates in various city localities. As explained previously, the dynamics of educational level are strongly tied to the age structure of the local population as younger people generally have higher levels of education [Ouředníček 1997].

It is interesting to observe analogical results when examining the index of segregation of low- and high-skilled workers for 2001 and 2011 [for more details, see Ouředníček et al. 2016]. Growing segregation indices for less educated and less skilled populations and decreasing values for people with higher socio-eco-

¹² Due to forced employment during socialism and the low quality of data from 1991 (see methods section).

conomic status have also been confirmed elsewhere in CEE countries [Musil 1968; Ladányi 1989; Marcińczak et al. 2013, 2015; Tammaru et al. 2016].

Additionally, an attempt to employ a complex indicator for an evaluation of the long-term development of educational level was made by considering the average number of years of schooling.¹³ Between 1970 and 2011 the value of this Theil index slightly increased (from 0.0006 to 0.0008) and, therefore, it can be claimed that spatial variability as a result of number of years of schooling was more pronounced in 2011 than in 1970.

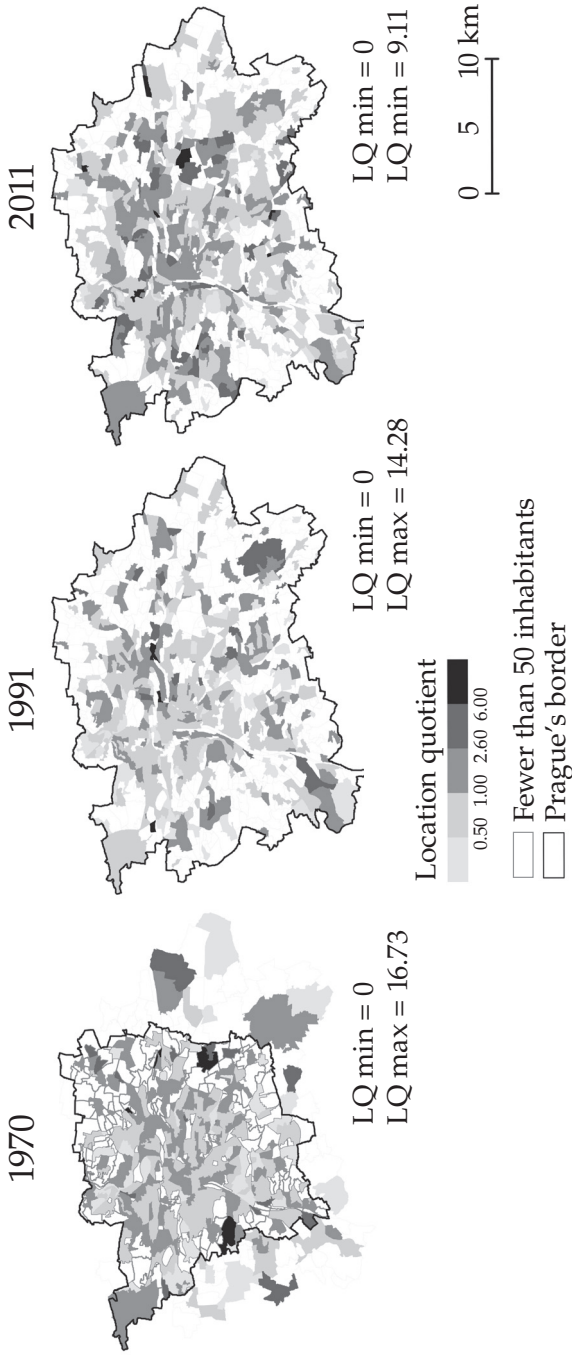
During the socialist period (in 1970 and 1991) a high proportion of variability could be explained on the level of housing types (approximately 35–50%) and even more on the cadastral level (55–85%) in the cases of both economic and educational indicators (see Table 3). However, this homogeneity has rapidly diminished at the level of housing type (to 10–24% in 2011). At the level of cadastres, we record a similar downward trend but we can still observe some homogeneity within these units (around 35–50% of variability is explained at this level). This reflects, for example, the dichotomy between the high social status north-western and the industrial eastern parts of Prague (see Figure 3). However, the differentiation explained at a cadastral level is generally lower than in the case of demographic indicators. In addition, the share of unemployed persons indicates that a more mosaic-type social spatial structure has become the reality in Prague. As the variability of the share of unemployed is quite high and neither the level of housing types nor cadastres explains the greater portion of the overall variability (see Table 3), it can be inferred that unemployed people are dispersed across the metropolitan region and the differentiation takes place almost uniquely on a micro-level. Similar results pointing to significant differentiation on the micro level of occupational and educational groups of population in Prague have been confirmed recently by comparative research in several post-socialist capital cities [Marcińczak et al. 2015] or case studies within the Prague Metropolitan Region [Špačková and Ouředníček 2012; Ouředníček et al. 2016].

Ethnic status

The spatial representation of persons with non-Czech ethnicity has been relatively unstable over time. The share of persons with non-Czech ethnicity was very low in 1970 (around 2%; see Table 2) and this group was dominated by Slovaks, i.e. citizens of Czechoslovakia. Concentrations of ethnic groups were unusual in socialist Prague [Linhart et al. 1977]. Besides Slovaks, the most important group were Roma people concentrated in selected parts of the inner city [Ouředníček 2002]. In general, non-Czechs more often lived in (selected) housing estates (e.g.

¹³ This describes the overall level of education and provides an approximation of the number of years an average inhabitant of a municipality spent in education [for more information, see Špačková and Nemeškal 2015].

Figure 4. Spatial patterns of the ethnic indicator: the location quotient for persons of non-Czech ethnicity, 1970–2011



Source: Population Censuses of 1970, 1991, 2011.

Stodůlky, Řepy) where the share of persons with non-Czech ethnicity was the highest compared to other housing types in both 1970 and 1991 (3% and 4%, respectively; see Table 2 and Figure 4).

These spatial patterns have changed during the post-socialist period (see Figure 4) as a consequence of the quantitative growth of these groups, changes in their residential preferences, and their ability to act in the housing market. Thus, the share of persons with non-Czech ethnicity and/or citizenship has increased (to 11% and 14%, respectively, in 2011) in various (small-scale) localities with new housing throughout the city (e.g. Dejvice, Holešovice, Záběhllice) as well as established neighbourhoods in the historical core and inner city (Nové Město, Žižkov), housing estates (Stodůlky, Libuš), and suburban periphery (Nebušice; for more details, see Čermák and Janská [2011] and Janská et al. [2014]). In total, foreign nationals with non-Czech citizenship are overrepresented primarily in the historical centre and tenement houses (with their share of the populations in these housing types at 26% and 17%, respectively, in 2011). Alongside these neighbourhoods, foreign nationals are dispersed throughout the city. Specific spatial patterns are found when populations with different citizenship are considered separately: well-off migrants such as Americans are concentrated in the city centre whereas, lower social status migrants (Ukrainians, Vietnamese) reside in more distant neighbourhoods with cheaper housing [for more details, see Přidalová and Ouředníček 2017].

The values of the Theil index suggest that the variability of the share of people with non-Czech ethnicity was high in all periods (it varied between 0.066 in 1991 and 0.112 in 2011); this also holds true for foreign nationals in 2011 (index value 0.178; see Table 3). Even during socialism, the urban space was differentiated and this variability increased during the post-socialist era despite the increase in the share of foreign nationals (and persons with non-Czech ethnicity) in the population. Thus, the trend in the development of variability is the inverse of many of the socio-economic indicators¹⁴ (e.g. the share of university-educated people). In conclusion, the importance of ethnic structure in the differentiation of urban space in Prague has grown considerably.

First, the ethnic variability explained at the level of housing type was very low in every year (only around 10%; see Table 3). Although a larger proportion of non-Czech nationals lived in housing estates during the socialist period, there were only insignificant ethnic differences between housing types generally. Even though the differences between housing types increased in the post-socialist period and a distinctly larger share of non-Czechs was detected in some of them (e.g. the Vietnamese community in the south of the city), a considerable heterogeneity of spatial units within housing types still remained (especially in the cases of the city centre, suburban periphery, and housing estates). Second, the level of

¹⁴ Generally, we have detected decreasing variability in spatial units when their share of the monitored part of the population was rising.

cadastres explains a greater share of variability, but it is still lower compared to most other indicators except for educational structure (about 30–38%; cf. with the age structure). In summary, this confirms a finely grained spatial pattern also in the case of the ethnic structure of the population.

Conclusion

Ever since Prague became the capital of independent Czechoslovakia in 1918, several different societal and political regimes have brought changes to its socio-spatial patterns, and each has left a different imprint on the fabric of the city. Our ambition was to extend scholarly knowledge of Prague's development by providing a thorough study of how the transformation from socialism back to capitalism impacted urban patterns, focusing on three statuses of population structure that are traditionally used in such studies: demographic, socio-economic, and ethnic statuses. This concluding section will now address each of the paper's objectives in turn.

(i) The development of the spatial pattern of each status in Prague gains its specifics from the impacts of social and spatial processes on population structures. While the most significant changes between socialism and post-socialism can be observed for ethnic spatial differentiation, socio-economic spatial patterns have been relatively stable. On the other hand, the city has witnessed considerable changes in demographic spatial patterns in both periods.

Changes in demographic spatial differentiation have been most influenced by the location and size of new housing construction and the gradual ageing of local populations, but were affected also by general demographic changes in society. Under socialism the construction of large housing estates at the outskirts of Prague led to a concentration of young families in these areas. A significant dichotomy between the pre-socialist and socialist housing stock appeared as a result of suburban development and a more dispersed housing supply during the post-socialist period, which created less clear-cut demographic patterns [cf. Haase et al. 2011] with a mix of different age groups in almost all housing types.

With regard to the socio-economic structure of the population, a stable west-east gradient can be observed since the inter-war period, with the most visible contrast being between villa quarters in the west inhabited by people with high socio-economic status, and industrial areas in the east with a high share of lower status inhabitants. Similar long-term contrasts at the level of housing type were found between the historical core and villa quarters on the one hand and tenement houses and peripheral areas on the other. The socialist-era construction of housing estates brought the most significant changes to the socio-economic patterns of Prague because these housing estates were inhabited by mostly younger people with higher educational levels. Since then the relative position of housing estates within the city has gradually weakened as a consequence of the ageing

of both the population and the housing stock. On the other hand, changes in socio-economic status connected with new developments during the post-social period have been spatially highly selective and have affected only small parts of neighbourhoods, mainly in the areas of tenement houses or in the suburban periphery.

Ethnic differentiation has undergone major changes; the share of persons in Prague with non-Czech ethnicity was very low under socialism and rose considerably in the post-socialist period. Non-Czechs are concentrated in selected localities and all housing types across the entire city. More specific spatial patterns can be observed while considering various nationalities separately [see Příkladová and Ouředníček 2016].

(ii) The importance of demographic, socio-economic, and ethnic population indicators for differentiating urban space has changed over the past forty years. From a methodological point of view it is important to note that the value of the Theil index was influenced by the share of the population that the indicator captured and, in most cases, the spatial variability of each group decreased as its proportion within the total population grew.

Regarding the demographic status of the population, the variability between spatial units was very high at the end of socialism and this variability has decreased since then. However, these indicators still play an important role in the differentiation of space in the city. The most important indicator in this respect is the share of seniors who are still concentrated in a smaller number of areas than other age groups.

For the socio-economic indicators, we recorded two contradictory trends related to the development of Prague's population structure. Whereas the variability between BSUs according to the share of university-educated people in the population was high in 1970, this variability has considerably decreased since then because the educational attainment of the population has risen in general and degree-holders have become more evenly distributed in space. Conversely, groups at the bottom of the social ladder (e.g. the unemployed and primary educated) are more spatially segregated within post-socialist Prague.¹⁵ The scope of our analysis of long-term trends is limited by the unavailability of comparable data and we lack one single indicator to comprehensively evaluate socio-economic status as a whole, so we cannot assess unequivocally whether the importance of socio-economic status has increased or decreased. Nonetheless, the data indicate that social-spatial differentiation on the basis of socio-economic status is still present in Prague but is reflected in other phenomena that were often omit-

¹⁵ On the other hand, we have to admit that we were unable to monitor a narrower indicator of those at the top of the social ladder in a long-term perspective using the available data (e.g. people in highly skilled jobs, with high incomes, or a doctoral-level education). However, the place of residence of these groups is probably also considerably differentiated in contemporary Prague.

ted in the old Censuses (e.g. incomes or the share of the population with a doctorate).

Spatial variability according to ethnic status has increased and did so mainly during the post-socialist period. The importance of ethnic groups for the differentiation of urban space needs to be highlighted because the spatial variability has risen despite the increase in the number of non-Czechs in the population (thus constituting an important exception to the trend mentioned above).

(iii) The results confirmed that the previous greater homogeneity within larger spatial units (cadastrals) or housing types has disappeared with the post-socialist transformations. The population within each housing type, especially, has become more differentiated. Besides the already observed high variability of socio-economic indicators [Ouředníček et al. 2016], we found a fine-grained structure also in the cases of demographic and ethnic statuses. This is in line with research in other CEE cities where local social mixing [Kährlik et al. 2015], hybridisation [Golubchikov et al. 2014], and the presence of transitory urbanites [Haase et al. 2011] have created less clear-cut socio-economic and demographic patterns.

New socio-spatial processes driven predominantly by movements of younger and better-off populations have taken place in previously less attractive localities (this is the case for suburbanisation and also for inner-city revitalisation). As a result, very different populations often live side by side (young and old, low and high social status, Czechs and non-Czechs) and it is a characteristic of Prague that people are willing and able to live in such constellations. However, these results suggest that research on spatial patterns in Prague should preferably be carried out at the most detailed level of analysis possible. Individual-level data would be particularly useful when examining the socio-spatial differentiation of urban space. The results of research that uses more general categories as units of analysis should be interpreted with caution as they can easily hide socio-spatial differences. A failure in identification, for example, of niches of poverty may be particularly problematic when introducing spatially targeted public policies.

In conclusion, we are persuaded that the transformation of housing and socio-spatial patterns in Prague (and also in other post-socialist cities) is still in progress and it is a question how this development will continue. The present micro-level differentiation in socio-economic and ethnic statuses could be a temporary phenomenon only and could be replaced by a new homogeneity as a result of the formation of ethnic neighbourhoods or new displacement processes in inner-city or suburban areas. Demographic differentiation, on the other hand, will probably remain, as we are unlikely to see housing construction of a similar extent and concentration as was witnessed under socialism.

PETRA ŠPAČKOVÁ is an assistant professor in the Department of Social Geography and Regional Development of the Faculty of Science, Charles University. Her research covers urban and settlement geography, with her main interest being in residential mobility and stability, migration, the suburbanisation process, housing estates, and community and locality studies. She has co-edited one book and published more than 20 papers, and her dissertation dealt with the social environment and local communities.

LUCIE POSPÍŠILOVÁ is an assistant professor in the same department. She researches and teaches in the area of social geography and urban studies. Her particular research interests are daily mobility, everyday life, and social and spatial barriers and inequalities, mainly within the framework of humanist and feminist geography and the geography of time. She has co-edited 2 books and published 6 papers covering these topics.

MARTIN OUŘEDNÍČEK is an associate professor in the same department. He is the head of the Urban and Regional Laboratory research team. His research covers urban studies, mobility, and migration on various geographical levels, the social environment, and suburbanisation. He has edited 5 books and authored more than 120 academic publications.

References

- Bjørnskov, C. and N. Potrafke. 2011. 'Politics and Privatization in Central and Eastern Europe.' *Economics of Transition* 19 (2): 201–230, <https://doi.org/10.1111/j.1468-0351.2010.00404.x>.
- Blažek, J. and P. Netrdová. 2012. 'Aktuální tendence lokální diferenciace vybraných socioekonomických jevů v Česku: směřuje vývoj k větší mozaikovitosti prostorového uspořádání?' (Contemporary trends in spatial-pattern development at the local level in Czechia: towards greater fragmentation of the spatial pattern?) *Geografie* 117 (3): 266–288.
- Boháč, A. 1923. *Hlavní město Praha. Studie o obyvatelstvu*. (The capital of Prague: a study of its population) Prague: SÚS, Bursík and Kohout.
- Borén, T. and M. Gentile. 2007. 'Metropolitan Processes in Post-communist States: An Introduction.' *Geografiska Annaler: Series B, Human Geography* 89 (2): 95–110, <https://doi.org/10.1111/j.1468-0467.2007.00242.x>.
- Brade, I., G. Herfert and K. Wiest. 2009. 'Recent Trends and Future Prospects of Socio-spatial Differentiation in Urban Regions of Central and Eastern Europe: A Lull before the Storm?' *Cities* 26 (5): 233–244, <https://doi.org/10.1016/j.cities.2009.05.001>.
- Čermák, Z. and E. Janská. 2011. 'Rozmístění a migrace cizinců jako součást sociálněgeografické diferenciace Česka.' (Distribution and migration of foreign nationals as part of the socio-geographical differentiation of Czechia) *Geografie* 116 (4): 422–439.
- Charvát, F. and J. Večerník. 1977. 'Dynamika a reprodukce sociálně třídní struktury Prahy.' (Dynamics and reproduction of the social-class structure of Prague) *Sociologický časopis* 13 (1): 13–27.
- Dekker, K. and R. van Kempen. 2004. 'Large Housing Estates in Europe: Current Situation and Developments.' *Tijdschrift voor economische en sociale geografie* 95 (5): 570–577, <https://doi.org/10.1111/j.0040-747X.2004.00340.x>.

- Dobry, M. 2000. 'Introduction. When Transitory Meets Simultaneous Transitions.' Pp. 1–15 in *Democratic and Capitalist Transitions in Eastern Europe. Lessons for the Social Science*, edited by M. Dobry. Dordrecht: Kluwer Academic Publishers, https://doi.org/10.1007/978-94-011-4162-8_1.
- Drbohlav, D. 2011. 'Immigrace a integrace cizinců v Česku: Několik zastavení na cestě země v její migrační proměně z Davida na téměř Goliáše.' (Immigration and integration of foreign nationals in Czechia: Some thoughts on the country's migration transition from a David to a near Goliath) *Geografie* 116 (4): 401–421.
- Drbohlav, D. and D. Džúrová 2007. "'Where Are They Going?'" Immigrant Inclusion in the Czech Republic (A Case Study on Ukrainians, Vietnamese, and Armenians in Prague). *International Migration* 45 (2): 69–95, <https://doi.org/10.1111/j.1468-2435.2007.00404.x>.
- Duke, V. and K. Grime. 1997. 'Inequality in Post-communism.' *Regional Studies* 31 (9): 883–890, <https://doi.org/10.1080/00343409750130001>.
- Enyedi, G. 1996. 'Urbanization under Socialism.' Pp. 100–118 in *Cities after Socialism: Urban and Regional Change and Conflict in Post-socialist Societies*, edited by G. Andrusz, M. Harloe and I. Szelényi. Oxford: Blackwell, <https://doi.org/10.1002/9780470712733.ch4>.
- Enyedi, G. 1998. 'Transformation in Central European Postsocialist Cities.' Pp. 9–34 in *Social Change and Urban Restructuring in Central Europe*, edited by G. Enyedi. Budapest: Akadémiai Kiadó.
- Golubchikov, O., A. Badyina and A. Makhrova. 2014. 'The Hybrid Spatialities of Transition: Capitalism, Legacy and Uneven Urban Economic Restructuring.' *Urban Studies* 51 (4): 617–633, <https://doi.org/10.1177/0042098013493022>.
- Haase, A., S. Kabisch, A. Steinführer, S. Bouzarovski, R. Hall and P. Ogden. 2010. 'Emergent Spaces of Reurbanisation: Exploring the Demographic Dimension of Inner-city Residential Change in a European Setting.' *Population, Space and Place* 16 (5): 443–463.
- Haase, A., A. Steinführer and S. Kabisch et al. (eds) 2011. *Residential Change and Demographic Challenge: The Inner City of East Central Europe in the 21st Century*. Farnham: Ashgate.
- Hamilton, F. E. I. 1999. 'Transformation and Space in Central and Eastern Europe.' *Geographical Journal* 165 (2): 135–144, <https://doi.org/10.2307/3060411>.
- Hamilton, F. E. I. 2005. 'The External Forces: Towards Globalization and European Integration.' Pp. 79–115 in *Transformation of Cities in Central and Eastern Europe: Towards Globalization*, edited by F. E. I. Hamilton, K. Dimitrovska Andrews and N. Pichler-Milanović. Tokyo, New York and Paris: United Nations University Press.
- Heyns, B. 2005. 'Emerging Inequalities in Central and Eastern Europe.' *Annual Review of Sociology* 31 (1): 163–197, <https://doi.org/10.1146/annurev.soc.30.012703.110637>.
- Hirt, S. and A. Kovachev. 2006. 'The Changing Spatial Structure of Post-socialist Sofia.' Pp. 113–130 in *The Urban Mosaic of Post-socialist Europe: Space, Institutions and Policy*, edited by S. Tsenkova and Z. Nedovic-Budic. Heidelberg and New York: Springer & Physica-Verlag, https://doi.org/10.1007/3-7908-1727-9_6.
- Kabisch, S. and K. Grossmann. 2010. 'Challenges for Large Housing Estates in Light of Population Decline and Ageing: Results of a Long-term Survey in East Germany.' *Habitat International* 39: 232–239, <https://doi.org/10.1016/j.habitatint.2012.12.003>.
- Kährlik, A., J. Novák, J. Temelová, K. Kadarik and T. Tammaru. 2015. 'Patterns and Drivers of Inner City Social Differentiation in Prague and Tallinn.' *Geografie* 120 (2): 275–295.
- Kährlik, A. and T. Tammaru. 2010a. 'Soviet Prefabricated Panel Housing Estates: Areas of Continued Social Mix or Decline? The Case of Tallinn.' *Housing Studies* 25 (2): 201–219, <https://doi.org/10.1080/02673030903561818>.

- Kährlik, A. and T. Tammaru. 2010b. 'Population Composition in New Suburban Settlements of the Tallinn Metropolitan Area.' *Urban Studies* 45 (5–6): 1055–1078.
- Kostelecký, T., V. Patočková and M. Illner. 2012. 'Problem Residential Neighbourhoods and Policies Aimed at Their Regeneration in the Post-socialist City: A Case Study of Prague.' *Sociologický časopis/Czech Sociological Review* 48 (1): 39–63.
- Kovács, Z. 1998. 'Ghettoization or Gentrification? Post-socialist Scenarios for Budapest.' *Netherlands Journal of Housing and the Built Environment* 13 (1): 63–81, <https://doi.org/10.1007/BF02496934>.
- Kovács, Z. 1999. 'Cities from State-socialism to Global Capitalism: An Introduction.' *GeoJournal* 49 (1): 1–6, <https://doi.org/10.1023/A:1007048819606>.
- Král, J. 1947. *Zeměpisný průvodce Velkou Prahou a její kulturní oblasti*. (Geographical guide to Greater Prague and its cultural area) Prague: Melantrich.
- Krausová, T. 2013. 'Cizinci v České republice.' (Foreign nationals in the Czech Republic) *Demografie* 55 (3): 231–236.
- Kulu, H. 2003. 'Housing Differences in the Late Soviet City: The Case of Tartu, Estonia.' *International Journal of Urban and Regional Research* 27 (4): 897–911, <https://doi.org/10.1111/j.0309-1317.2003.00490.x>.
- Ladányi, J. 1989. 'Changing Patterns of Residential Segregation in Budapest.' *International Journal of Urban and Regional Research* 13 (4): 555–572, <https://doi.org/10.1111/j.1468-2427.1989.tb00136.x>.
- Ladányi, J. 1993. 'Patterns of Residential Segregation and the Gipsy Minority in Budapest.' *International Journal of Urban and Regional Research* 17 (1): 30–41, <https://doi.org/10.1111/j.1468-2427.1993.tb00210.x>.
- Ladányi, J. 2002. 'Residential Segregation among Social and Ethnic Groups in Budapest during the Post-communist Transition.' Pp. 170–182 in *Of State and Cities: The Partitioning of Urban Space*, edited by P. Marcuse and R. van Kempen. Oxford: Oxford University Press.
- Linhart, J., V. Rak and J. Voženílek. 1977. 'Sociální aspekty ekologické zónace hlavního města Prahy.' (Social aspects of the ecological zonation of Prague) *Sociologický časopis* 13 (1): 94–115.
- Lux, M. and M. Mikeszová. 2012. 'Property Restitution Private Rental Housing in Transition: The Case of the Czech Republic.' *Housing Studies* 27 (1): 77–96, <https://doi.org/10.1080/02673037.2012.629643>.
- Lux, M. and P. Sunega. 2011. 'Sociální nerovnosti v bydlení a systémová rizika na trhu bydlení—vliv na sociální soudržnost a ekonomickou stabilitu.' (Social unevenness in housing and systemic risks on housing market—the impact on social cohesion and economic stability) Pp. 109–131 in *Standardy bydlení 2010/2011: Sociální nerovnosti a tržní rizika bydlení*, edited by M. Lux. Prague: Sociologický ústav Akademie věd ČR, v.v.i.
- Marcińczak, S. 2007. 'The Socio-spatial Structure of Post-socialist Łódź, Poland. Results of National Census 2002.' *Bulletin of Geography. Socio-economic Series* (8): 65–82.
- Marcińczak, S. 2012. 'The Evolution of Spatial Patterns of Residential Segregation in Central European Cities: The Łódź Functional Urban Region from Mature Socialism to Mature Post-socialism.' *Cities* 29 (5): 300–309, <https://doi.org/10.1016/j.cities.2011.08.008>.
- Marcińczak, S., M. Gentile and M. Stepniak. 2013. 'Paradoxes of (Post) Socialist Segregation: Metropolitan Sociospatial Divisions under Socialism and after in Poland.' *Urban Geography* 34 (3): 327–352, <https://doi.org/10.1080/02723638.2013.778667>.
- Marcińczak, S., T. Tammaru, M. Gentile, J. Temelová, J. Novák, A. Kährlik, V. Valatka, Z. Kovács and B. Szabó. 2015. 'Patterns of Socioeconomic Segregation in the Capital

- Cities of Fast-track Reforming Postsocialist Countries.' *Annals of the Association of American Geographers* 105 (1): 183–202, <https://doi.org/10.1080/00045608.2014.968977>.
- Matějů, P. 1977. 'Sociologické aspekty vývoje bydlení v Praze.' (Sociological aspects of housing development in Prague) *Sociologický časopis* 13 (1): 39–58.
- Matějů, P. 1980. 'Vývoj sociálně prostorové struktury Prahy v letech 1930–1970 ve světle faktorové analýzy.' (Development of the socio-spatial structure of Prague 1930–1970 in the light of factor analysis) *Sociologický časopis* 16 (4): 572–591.
- Matějů, P., J. Večerník and H. Jeřábek. 1979. 'Social Structure, Spatial Structure and Problems of Urban Research: The Example of Prague.' *International Journal of Urban and Regional Research* 3 (2): 181–202, <https://doi.org/10.1111/j.1468-2427.1979.tb00785.x>.
- Medová, L. and D. Drbohlav. 2013. 'Estimating the Size of the Irregular Migrant Population in Prague—An Alternative Approach. *Tijdschrift voor Economische en Sociale Geografie* 104: (1): 75–89, <https://doi.org/10.1111/j.1467-9663.2012.00737.x>.
- Míkula, Š. and L. Zídek. 2013. 'Impact of Transition Strategies on Macroeconomic Outcomes.' Pp.249–259 in *Proceedings of the 11th International Conference Economic Policy in the European Union Member Countries: Selected Papers*, edited by Z. Machovcová and N. Uhrová. Ostrava: VŠB—Technical University Ostrava.
- Mlčoch, L., P. Machonin and M. Sojka. 2002. *Ekonomické a společenské změny v české společnosti po roce 1989: alternativní pohled*. (Economic and social changes in Czech society after 1989: an alternative view) Prague: Karolinum.
- Moscheles, J. 1937. 'The Demographic, Social and Economic Regions of Greater Prague: A Contribution to Urban Geography.' *Geographical Review* 27 (3): 413–430, <https://doi.org/10.2307/210327>.
- Murdie, R. A. 1969. *Factorial Ecology of Metropolitan Toronto, 1951–1961: An Essay on the Social Geography of the City*. Chicago, IL: University of Chicago Press.
- Musil, J. 1960. 'Vývoj demografické struktury Prahy.' (The development of Prague's demographic structure) *Demografie* 2 (3): 234–249.
- Musil, J. 1968. 'The Development of Prague's Ecological Structure.' Pp. 232–259 in *Readings in Urban Sociology*, edited by R. E. Pahl. Oxford: Pergamon Press, <https://doi.org/10.1016/B978-0-08-013293-8.50016-6>.
- Musil, J. 1977. 'Demografická struktura a vývoj Prahy.' (Demographic structure and development of Prague) *Sociologický časopis* 13 (1): 28–38.
- Musil, J. 1987. 'Housing Policy and the Sociospatial Structure of Cities in a Socialist Country—The Example of Prague.' *International Journal of Urban and Regional Research* 11 (1): 27–36, <https://doi.org/10.1111/j.1468-2427.1987.tb00033.x>.
- Musil, J. 1991. 'Nové vymezení sociální ekologie.' (The new conceptions of social ecology) *Sociologický časopis* 27 (1): 69–89.
- Musil, J. 1993. 'Changing Urban Systems in Post-communist Societies in Central Europe: Analysis and Prediction.' *Urban Studies* 30 (6): 899–905, <https://doi.org/10.1080/00420989320080841>.
- Musil, J. 2005. 'City Development in Central and Eastern Europe before 1990: Historical Context and Socialist Legacies.' Pp. 22–43 in *Transformation of Cities in Central and Eastern Europe: Towards Globalization*, edited by F. E. I. Hamilton. K. Dimitrovska Andrews and N. Pichler-Milanović. Tokyo, New York and Paris: United Nations University Press.
- Musil, J. and Z. Ryšavý. 1983. 'Urban and Regional Processes under Capitalism and Socialism: A Case Study from Czechoslovakia.' *International Journal of Urban and Regional Research* 7 (4): 495–527, <https://doi.org/10.1111/j.1468-2427.1983.tb00404.x>.
- Musil, J. et al. 1985. *Lidé a sídliště*. (People and housing estates) Prague: Svoboda.

- Musterd, S. 2005. 'Social and Ethnic Segregation in Europe: Levels, Causes, and Effects.' *Journal of Urban Affairs* 27 (3): 331–348, <https://doi.org/10.1111/j.0735-2166.2005.00239.x>.
- Netrdová, P. and V. Nosek. 2009. 'Přístupy k měření významu geografického rozměru společenských nerovností.' (Approaches to measuring the relevance of the geographical dimension of social inequalities) *Geografie* 114 (1): 52–65.
- Novotný, J., V. Nosek and K. Jelínek. 2014. *EasyStat 1.0*. Statistical software. Prague: Charles University in Prague. Retrieved 15 September 2016 (http://web.natur.cuni.cz/~pepino/EasyStat_1_0_manual.pdf).
- Ott, T. 2001. 'From Concentration to De-concentration—Migration Patterns in the Post-socialist City.' *Cities* 18 (6): 403–412, [https://doi.org/10.1016/S0264-2751\(01\)00032-4](https://doi.org/10.1016/S0264-2751(01)00032-4).
- Ouředníček, M. 1997. 'The Development of the Educational Structure of Prague.' *Acta Universitatis Carolinae—Geographica* 32 (Supplementum): 227–233.
- Ouředníček, M. 2002. *Urbanizační procesy obyvatelstva v Pražském městském regionu*. (Urbanisation processes of the population in the Prague Urban Region) PhD Dissertation. Prague: Charles University in Prague.
- Ouředníček, M. 2003. 'Suburbanizace Prahy.' (The suburbanisation of Prague) *Sociologický časopis* 39 (2): 235–253.
- Ouředníček, M. 2007. 'Differential Suburban Development in the Prague Urban Region.' *Geografiska Annaler: Human Geography* 89B (2): 111–125, (<https://doi.org/10.1111/j.1468-0467.2007.00243.x>).
- Ouředníček, M., Z. Kopecká, I. Přidalová and J. Nemeškal. 2014. 'A Typology of Residential Areas.' Specialised map. Prague: Charles University in Prague. Retrieved 15 September 2016 (<http://www.atlasobyvatelstva.cz/cs/92-typologie-rezidencnich-arealu>).
- Ouředníček, M., L. Pospíšilová, P. Špačková, Z. Kopecká and J. Novák. 2016. 'The Velvet and Mild: Socio-spatial Differentiation in Prague after Transition.' Pp. 261–286 in *Socio-economic Segregation in European Capital Cities: East Meets West*, edited by T. Tammaru, S. Marcińczak, M. van Ham and S. Musterd. London and New York: Routledge.
- Ouředníček, M. and J. Temelová. 2009. 'Twenty Years after Socialism: The Transformation of Prague's Inner Structure.' *Studia Universitatis Babeş-Bolyai, Sociologia* 54 (1): 9–30.
- Ouředníček, M. and J. Temelová. 2011. 'Nové sociálně prostorové nerovnosti, lokální rozvoj a kvalita života.' (New socio-spatial inequalities, local development and quality of life) *Sociologický časopis/Czech Sociological Review* 47 (4): 625–631.
- Ouředníček, M. and J. Temelová. (eds) 2012. *Sociální proměny pražských čtvrtí*. (Social changes in Prague's neighbourhoods) Prague: Academia.
- Pavlínek, P. 2003. 'Alternative Theoretical Approaches to Post-communist Transformations in Central and Eastern Europe.' *Acta Slavica Iaponica* 20: 85–108.
- Philipov, D. and J. Dorbritz. 2003. *Demographic Consequences of Economic Transition in Countries of Central and Eastern Europe*. (Population Studies) No. 39. Strasbourg: Council of Europe Publishing.
- Přidalová, I. and M. Ouředníček. 2017. 'Role zahraniční migrace v měnící se sociálně-prostorové diferenciaci Prahy.' (The role of international migration in the changing socio-spatial differentiation of Prague) *Sociologický časopis/Czech Sociological Review* (forthcoming).
- Ruoppila, S. 2004. 'Processes of Residential Differentiation in Socialist Cities: Literature Review on the Cases of Budapest, Prague, Tallinn and Warsaw.' *European Journal of Spatial Development*. Refereed Articles Feb. 2004. No. 9, 24 pp.

- Ruoppila, S. and A. Kährik. 2003. 'Socio-economic Residential Differentiation in Post-socialist Tallinn.' *Journal of Housing and the Built Environment* 18 (1): 49–73, <https://doi.org/10.1023/A:1022435000258>.
- Rychtaříková, J. 2000. 'Demographic Transition or Demographic Shock in Recent Population Development in the Czech Republic?' *Acta Universitatis Carolinae—Geographica* 35 (1): 89–102.
- Sokol, M. 2001. 'Central and Eastern Europe a Decade after the Fall of State-socialism: Regional Dimensions of Transition Processes.' *Regional Studies* 35 (7): 645–655, <https://doi.org/10.1080/00343400120075911>.
- Soulsby, A. and E. Clark. 2007. 'Organization Theory and the Post-socialist Transformation: Contributions to Organizational Knowledge.' *Human Relations* 60 (10): 1419–1442, <https://doi.org/10.1177/0018726707083470>.
- Shevky, E. and W. Bell. 1955. *Social Area Analysis*. Stanford, CA: Stanford University Press.
- Sládek, J. 2011. 'Privatizace bytového fondu v České republice.' (The privatisation of the housing stock in the Czech Republic) Pp. 19–27 in *Standardy bydlení 2010/2011: Sociální nerovnosti a tržní rizika bydlení*, edited by M. Lux. Prague: Sociologický ústav Akademie věd ČR, v.v.i.
- Smith, D. M. 1996. 'The Socialist City.' Pp. 70–99 in *Cities after Socialism: Urban and Regional Change and Conflict in Post-socialist Societies*, edited by G. Andrusz, M. Harloe and I. Szelényi. Oxford: Blackwell, <https://doi.org/10.1002/9780470712733.ch3>.
- Sojka, M. 2002. 'Úvod.' (Introduction) Pp. 3–21 in *Ekonomické a společenské změny v české společnosti po roce 1989: alternativní pohled*, edited by L. Mlčoch, P. Machonin and M. Sojka. Prague: Karolinum
- Špačková, P. and J. Nemeškal. 2015. *Level of Education in Prague*. Specialised map. Prague: Charles University in Prague. Retrieved 15 September 2016 (http://www.atlasobyvatelstva.cz/sites/default/files/4.2_vzdelanost_v_praze_en.pdf).
- Špačková, P. and M. Ouředníček. 2012. 'Spinning the Web: New Social Contacts of Prague's Suburbanites.' *Cities* 29 (5): 341–345, <https://doi.org/10.1016/j.cities.2011.09.002>.
- Stanilov, K. 2007. *The Post-socialist City*. Dordrecht: Springer, <https://doi.org/10.1007/978-1-4020-6053-3>.
- Stark, D. 1992. 'From System Identity to Organizational Diversity: Analyzing Social Change in Eastern Europe.' *Contemporary Sociology* 21 (3): 299–304, <https://doi.org/10.2307/2076239>.
- Steinführer, A. and A. Haase. 2007. 'Demographic Change as a Future Challenge for Cities in East Central Europe.' *Geografiska Annaler: Series B, Human Geography* 89 (2): 183–195, <https://doi.org/10.1111/j.1468-0467.2007.00247.x>.
- Sýkora, L. 1996. 'Transformace fyzického a sociálního prostředí Prahy.' (The transformation of the physical and social environment in Prague) Pp. 361–394 in *Geografická organizace společnosti a transformační procesy v České republice*, edited by M. Hampl et al. Prague: Přírodovědecká fakulta Univerzity Karlovy v Praze.
- Sýkora, L. 1999. 'Processes of Socio-spatial Differentiation in Post-communist Prague.' *Housing Studies* 14 (5): 679–701, <https://doi.org/10.1080/02673039982678>.
- Sýkora, L. and S. Bouzarovski. 2012. 'Multiple Transformations Conceptualising the Post-communist Urban Transition.' *Urban Studies* 49 (1): 43–60, <https://doi.org/10.1177/0042098010397402>.
- Szelényi, I. 1987. 'Housing Inequalities and Occupational Segregation in State Socialist Cities: Commentary to the Special Issue of IJURR on East European Cities.' *International Journal of Urban and Regional Research* 11 (1): 1–8, <https://doi.org/10.1111/j.1468-2427.1987.tb00031.x>.

- Szelényi, I. 1996. 'Cities under Socialism—and After.' Pp. 286–317 in *Cities after Socialism: Urban and Regional Change and Conflict in Post-socialist Societies*, edited by G. Andrusz, M. Harloe and I. Szelényi. Oxford: Blackwell, <https://doi.org/10.1002/9780470712733.ch10>.
- Tammaru, T., S. Marcińczak, M. van Ham and S. Musterd (eds). 2016. *Socio-economic Segregation in European Capital Cities. East Meets West*. New York: Routledge.
- Temelová, J. 2009. 'Urban Revitalization in Central and Inner Parts of (Post-socialist) Cities: Conditions and Consequences.' Pp. 12–25 in *Regenerating Urban Core*, edited by T. Ilmavirta. Helsinki: Helsinki University of Technology, Centre for Urban and Regional Studies.
- Temelová, J. and J. Novák. 2011. 'Daily Street Life in the Inner City of Prague under Transformation: The Visual Experience of Socio-spatial Differentiation and Temporal Rhythms.' *Visual Studies* 26 (3): 213–228, <https://doi.org/10.1080/1472586X.2011.610944>.
- Temelová, J., J. Novák, M. Ouředníček and P. Puldová. 2011. 'Housing Estates after Socialism: Various Trajectories and Inner Differentiation.' *Urban Studies* 48 (9): 1811–1834, <https://doi.org/10.1177/0042098010379279>.
- Theil, H. and A. J. Finizza. 1971. 'A Note on the Measurement of Racial Integration of Schools by Means of Informational Concepts.' *The Journal of Mathematical Sociology* 1 (2): 187–193, <https://doi.org/10.1080/0022250X.1971.9989795>.
- Tosics, I. 2005. 'City Development in Central and Eastern Europe since 1990: The Impact of Internal Forces.' Pp. 44–78 in *Transformation of Cities in Central and Eastern Europe: Towards Globalization*, edited by F. E. I. Hamilton, K. Dimitrovska Andrews and N. Pichler-Milanović. Tokyo, New York and Paris: United Nations University Press.
- Tsenkova, S. 2006. 'Beyond Transitions: Understanding Urban Change in Post-socialist Cities.' Pp. 21–51 in *The Urban Mosaic of Post-socialist Europe: Space, Institutions and Policy*, edited by S. Tsenkova and Z. Nedovic-Budic. Heidelberg and New York: Springer & Physica-Verlag, https://doi.org/10.1007/3-7908-1727-9_2.
- van Kempen, R. and A. Murie. 2009. 'The New Divided City: Changing Patterns in European Cities.' *Tijdschrift voor economische en sociale geografie* 100 (4): 377–398, <https://doi.org/10.1111/j.1467-9663.2009.00548.x>.
- Votrubeč, C. 1965. *Praha—zeměpis velkoměsta*. (Prague—the geography of the city) Prague: SPN.
- Weclawowicz, G. 1979. 'The Structure of Socio-economic Space in Warsaw in 1931 and 1970: A Study in Factorial Ecology.' Pp. 387–424 in *The Socialist City, Spatial Structure and Urban Policy*, edited by A. French and F. E. I. Hamilton. Chichester: John Wiley & Sons.
- White, P. 1984. *The West European City: A Social Geography*. London and New York: Wiley.
- Wiessner, R. 1999. 'Urban Development in East Germany—Specific Features of Urban Transformation Processes.' *GeoJournal* 49 (1): 43–51, <https://doi.org/10.1023/A:1007016912703>.
- Židek, L. 2006. 'Transformace české ekonomiky.' (The transformation of the Czech economy) Brno: Vydavatelství MU.